

581

Zooplankton Volumes Off the Pacific Coast, 1960



SPECIAL SCIENTIFIC REPORT-FISHERIES No. 581

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF COMMERCIAL FISHERIES

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By

JAMES R. THRAILKILL

United States Fish and Wildlife Service
Special Scientific Report--Fisheries No. 581

Washington, D.C.
March 1969

SPECIAL SCIENTIFIC REPORT--FISHERIES

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By

JAMES R. THRAILKILL, Fishery Biologist

Bureau of Commercial Fisheries
Fishery-Oceanography Center
La Jolla, Calif. 92037

ABSTRACT

Basic data on volumes of zooplankton are given, together with data for all plankton hauls taken on survey cruises of the California Cooperative Oceanic Fisheries Investigations. Distribution charts showing relative areal zooplankton abundance by month are included.

Reports on zooplankton volumes obtained on cruises by CalCOFI (California Cooperative Oceanic Fisheries Investigations) off the Pacific coast have been published annually since 1949. Six reports in this series, for 7 years (1949-55), contained basic data on the volumes of zooplankton collected on monthly survey cruises (Staff, South Pacific Fishery Investigations, 1952, 1953, 1954a, 1954b, 1955). Four reports, for 1956-59, contained monthly distribution charts in addition to the basic data (Thraillkill, 1957, 1959, 1961, 1963). Thraillkill (1956) illustrated the relative areal zooplankton abundance in monthly and yearly distributions for 1949-55.

Zooplankton volumes in the California Current system in relation to the rest of the Pacific Ocean were compiled by Reid (1962).

The CalCOFI program is sponsored by the Marine Research Committee and carried out cooperatively by the Scripps Institution of Oceanography of the University of California

San Diego, the Pelagic Fish Investigations of the California Department of Fish and Game, the California Academy of Sciences, the Hopkins Marine Station of Stanford University, and the Fishery-Oceanography Center of the Bureau of Commercial Fisheries.

The Bureau uses the plankton samples primarily for studies of the early life history, distribution, abundance, and survival of commercially important or potentially important fishes. These collections are also used by the Scripps Institution of Oceanography in studies of productivity and zoogeography.

The vessels used, and the CalCOFI cruises for 1960, are given in table 1. Four vessels were operated by the Scripps Institution of Oceanography and one by the Bureau of Commercial Fisheries. The stations occupied during 1960 are shown in figure 1. The survey cruises for 1960 and the areas covered and the number of stations occupied each month are given in table 2.

Table 1.--Research vessels participating in CalCOFI Survey Cruises, 1960

Month	Cruise number	BLACK DOUGLAS	HORIZON	ORCA	HUGH M. SMITH	SPENCER F. BAIRD
January	6001	X	X	X	...	...
February	6002	X	...	...	X	...
March	6003	X	X	...	...	...
April	6004	X	X	...	X	...
May	6005	X	...	X	X	...
June	6006	X	...	X	...	...
July	6007	X	X	...	...	...
August	6008	X	...	...	...	...
September	6009	X	...	...	X	...
October	6010	X	...	...	X	X

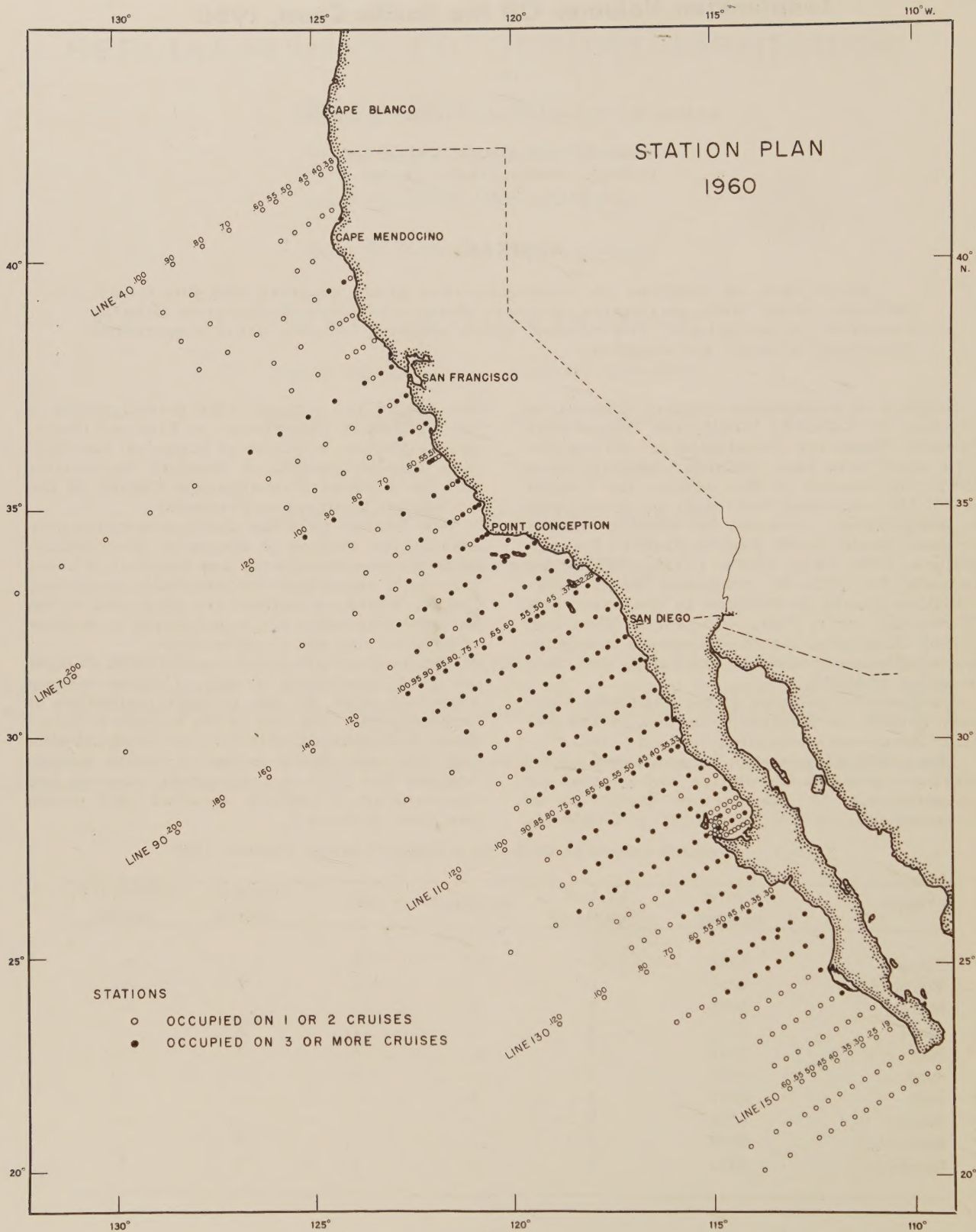


Figure 1.--Stations occupied on California Cooperative Oceanic Fisheries Investigations cruises during 1960.

Table 2. --Area covered and number of stations occupied on monthly CalCOFI cruises during 1960

Month	Cruise number	Area covered station lines	Number of stations occupied
January	6001	40 - 157	^{1/} 307
February	6002	73 - 137	172
March	6003	73 - 137	163
	6003 Special	117 and 120	39
April	6004	73 - 157	^{2/} 344
May	6005	73 - 137	153
June	6006	73 - 137	191
July	6007	50 - 137	211
August	6008	83 - 143	72
September	6009	103 - 121	52
October	6010	60 - 137	172

^{1/} Three Gulf of California stations, 151G40; 157G25, and 157G40 not included.

^{2/} Four Gulf of California stations, 157G40; 157G70; 157G130, and 157G150 not included.

The equipment and procedures used to collect plankton samples during 1960 have been standard since 1951. Oblique tows from a depth of about 140 m. to the surface, except in shallow water, are taken at a retrieval rate of 20 m. per minute. A calibrated current meter is fastened in the mouth of the net to determine the volume of water filtered on each haul. The nets are about 5 m. long, 1 m. in diameter at the mouth, and constructed of No. 30 xxx grit gauze (an extra heavy grade of silk bolting cloth).

The wet plankton volume of each sample is determined by displacement. The plankton is separated from its preserving liquid (5 percent Formalin¹) by filtering, allowed to drain, then placed into a graduated cylinder to which is added a known volume of 5 percent Formalin. Two volumes are obtained and recorded in cubic centimeters for each sample: (1) the total volume of all plankton material and (2) the volume of smaller organisms after removal of larger organisms, such as jellies, squid, salps, pyrosomes, larger mollusks and larger crustaceans. "Larger" organisms are those with individual volumes greater than 5 cc. Juvenile and adult fishes (not considered "planktonic") are removed before volume determination and are not included in either volume. The plankton volumes are then standardized to ₃ the number of cubic centimeters in 1,000 m. of water strained.

¹ Trade name referred to in this publication does not imply endorsement of a commercial product.

The distribution charts in this report are based on the volume of small organisms per 1,000 m. of water strained and are of two types: the average plankton volume at each station during the year (fig. 2), and a series of monthly charts which accompany the plankton volume data (figs. 4-13). Five categories of abundance are designated: (1) very light, <34 cc. of plankton, (2) light, 34 to 100 cc. of plankton, (3) moderate, 101 to 300 cc. of plankton, (4) heavy, 301 to 900 cc. of plankton, and (5) very heavy, >900 cc. of plankton.

The major table in this report (table 5) serves a dual purpose: as a record of basic data for all plankton tows made during 1960, and as a record of the volume of plankton obtained in each haul. The basic information included for each haul is station number, position, date and time of collection, volume of water strained, depth of haul (calculated on a straight line relation between the wire angle and the amount of wire out), and the standardized plankton volume.

In this report a comparison of the 1960 plankton volumes with those of previous years is made for the two areas most consistently occupied since 1951--one off central California and adjacent northern Baja California, and the other off central Baja California. These areas include CalCOFI survey lines 80-107 and 110-137, respectively (fig. 1). No comparison is made for the years 1949 and 1950 because hauls in those years were from a depth of 70 m. to the surface--half the depth range of hauls in later years.

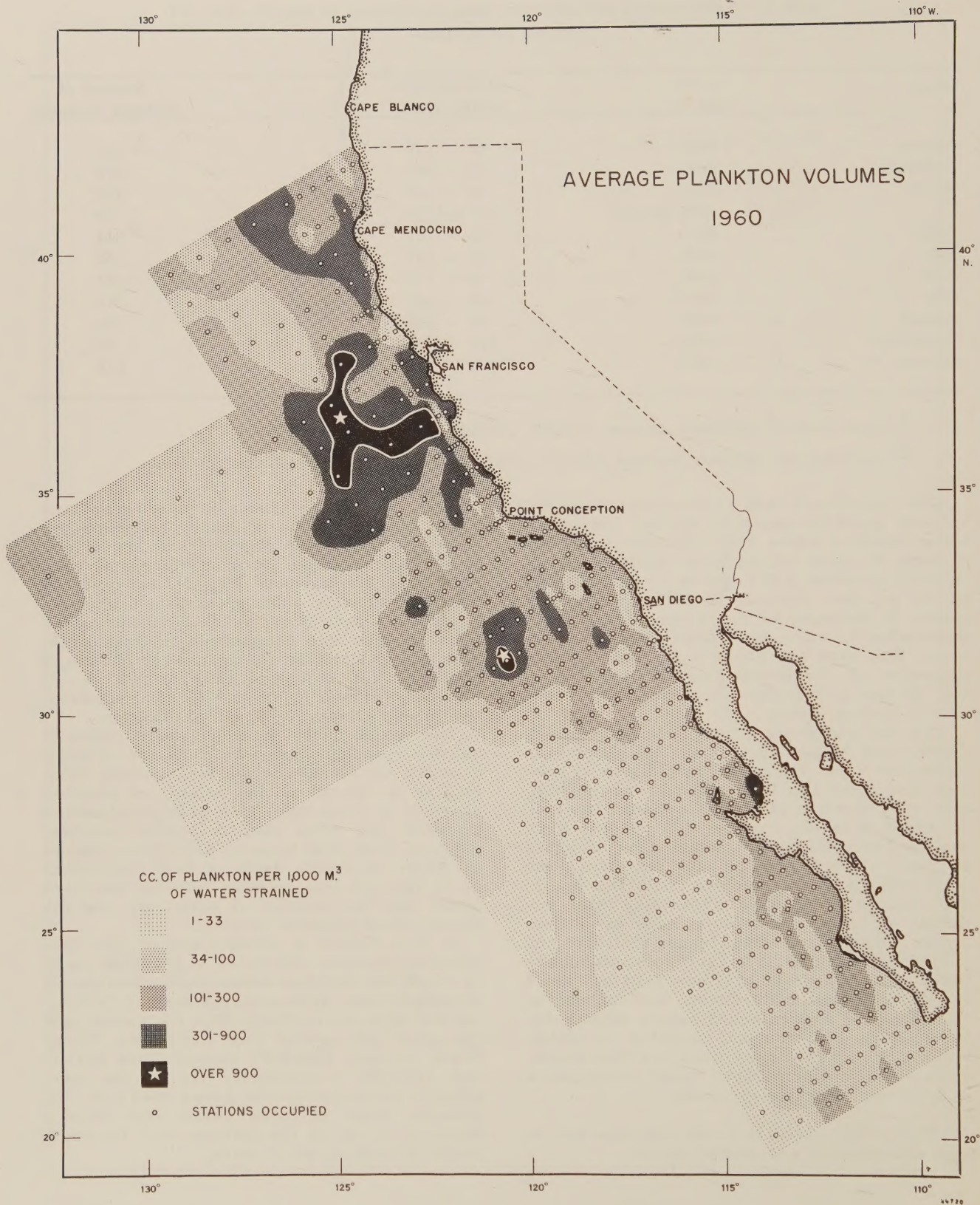


Figure 2.--Average plankton volumes, 1960.

The average monthly plankton volumes by years, 1951-60, along with the monthly average for 1951-56, in the area comprising lines 80-107 is given in table 3. Data for August and September are not included because the coverage during those months was incomplete in recent years. Similar information for the southern area (lines 110-137) is given in table 4.

Annual plankton volumes may be characterized as heavy in 1951-56, light in 1958 and 1959, and apparently transitional in 1957 (when volumes were greater than the 1951-56 average in January-April, and smaller in May-December). The average plankton volume for 1960 was between the heavy volumes

for 1951-56 and the light volumes for 1958 and 1959.

In the northern area (lines 80-107) the 1960 average monthly volumes were less than the 1951-56 average volumes during January, February, April, June, July, and October, and greater during March and May. The high average standardized plankton volume (374 cc.) for May 1960 was due primarily to the heavy hauls at a group of 9 of the 72 stations in this 80-107 area. These stations, between 90.65 and 90.85, and 93.70 and 93.90, inclusive, had an average plankton volume of 1,573 cc. The average 10-m. water temperatures in this area during May were the lowest of the 5-month period, March-July (March 13.84°C.,

Table 3.--Average monthly plankton volumes in the area off southern California and adjacent northern Baja California (lines 80-107) for January through July, and October, 1951-60

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Oct.
	<u>cc.</u>	<u>cc.</u>	<u>cc.</u>	<u>cc.</u>	<u>cc.</u>	<u>cc.</u>	<u>cc.</u>	<u>cc.</u>
1951-56 ave.	163	193	166	185	264	362	514	137
1951	198	140	98	133	143	187	70	68
1952	109	317	205	151	152	228	234	130
1953	122	150	247	231	448	621	1369	129
1954	97	199	144	134	193	331	255	147
1955	102	157	135	195	230	353	350	114
1956	351	195	169	264	420	453	808	234
1957	*	267	424	518	188	134	128	87
1958	61	53	72	62	90	91	97	36
1959	37	41	31	62	63	100	102	111
1960	81	132	186	158	374	239	86	92

* Not occupied.

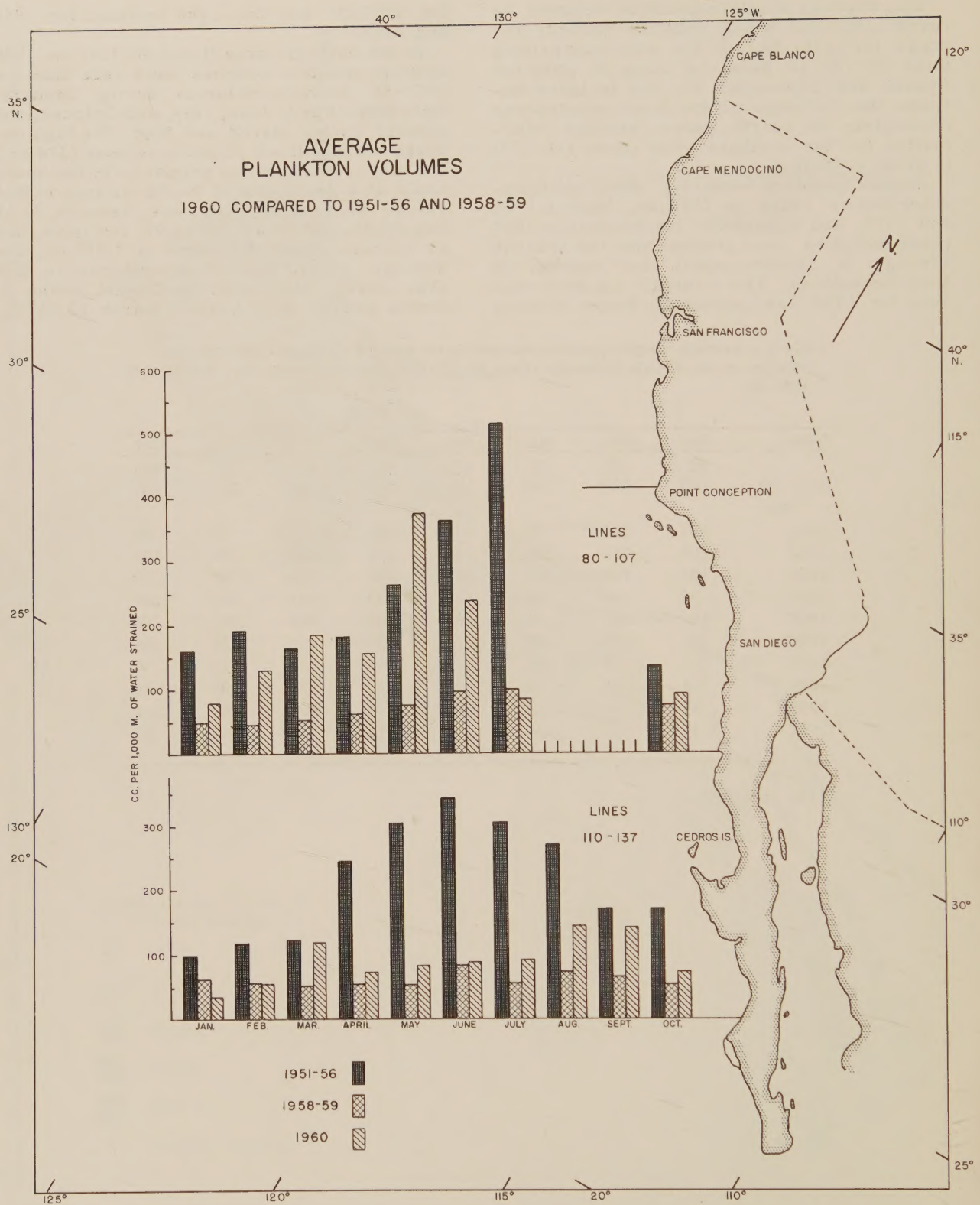


Figure 3.--Average plankton volumes in 1960 compared with average volumes 1951-56, and average volumes in 1958-59, by month and area.

Table 4.--Average monthly plankton volumes in the area off central Baja California (lines 110-137) for January through October, 1951-60

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
	<u>cc.</u>	<u>cc.</u>	<u>cc.</u>	<u>cc.</u>	<u>cc.</u>	<u>cc.</u>	<u>cc.</u>	<u>cc.</u>	<u>cc.</u>	<u>cc.</u>
1951-56 ave.	100	120	124	244	305	342	306	271	171	171
1951	50	55	50	62	85	104	85	140	124	191
1952	81	69	123	122	128	159	311	392	233	107
1953	75	101	142	182	223	295	232	276	134	181
1954	75	101	69	197	130	178	178	171	*	186
1955	101	138	146	503	630	492	289	Norpac** Norpac		188
1956	219	258	214	395	632	824	743	374	192	*
1957	121	183	375	279	275	195	147	126	158	146
1958	78	83	54	63	55	80	55	86	52	52
1959	47	32	48	42	54	83	56	61	76	55
1960	35	57	120	75	86	90	94	145	144	78

*Not occupied.

** An oceanographic survey of the North Pacific Ocean.

April 14.18, May 13.21, June 15.66, and July 15.51°C.). Possibly the heavy plankton concentrations in May were transported into the area by the west wind drift from the dense subarctic populations (as shown in Reid, 1962).

In the southern area (lines 110-137), during 7 of the 10 months sampled (January-February, April-July, and October) plankton volumes in 1960 were similar to the light volume years (1958 and 1959). The August volumes

for 1960 fell about midway between the heavy volume years (1951-56) and the light volume years (1958 and 1959). The March and September volumes for 1960 were similar to the heavy volume years (1951-56).

A comparison, by months and area, of the 1960 plankton volumes with the average volumes for 1951-56 and 1958-59 is presented graphically in figure 3. The transition year, 1957, is not included in the graph.

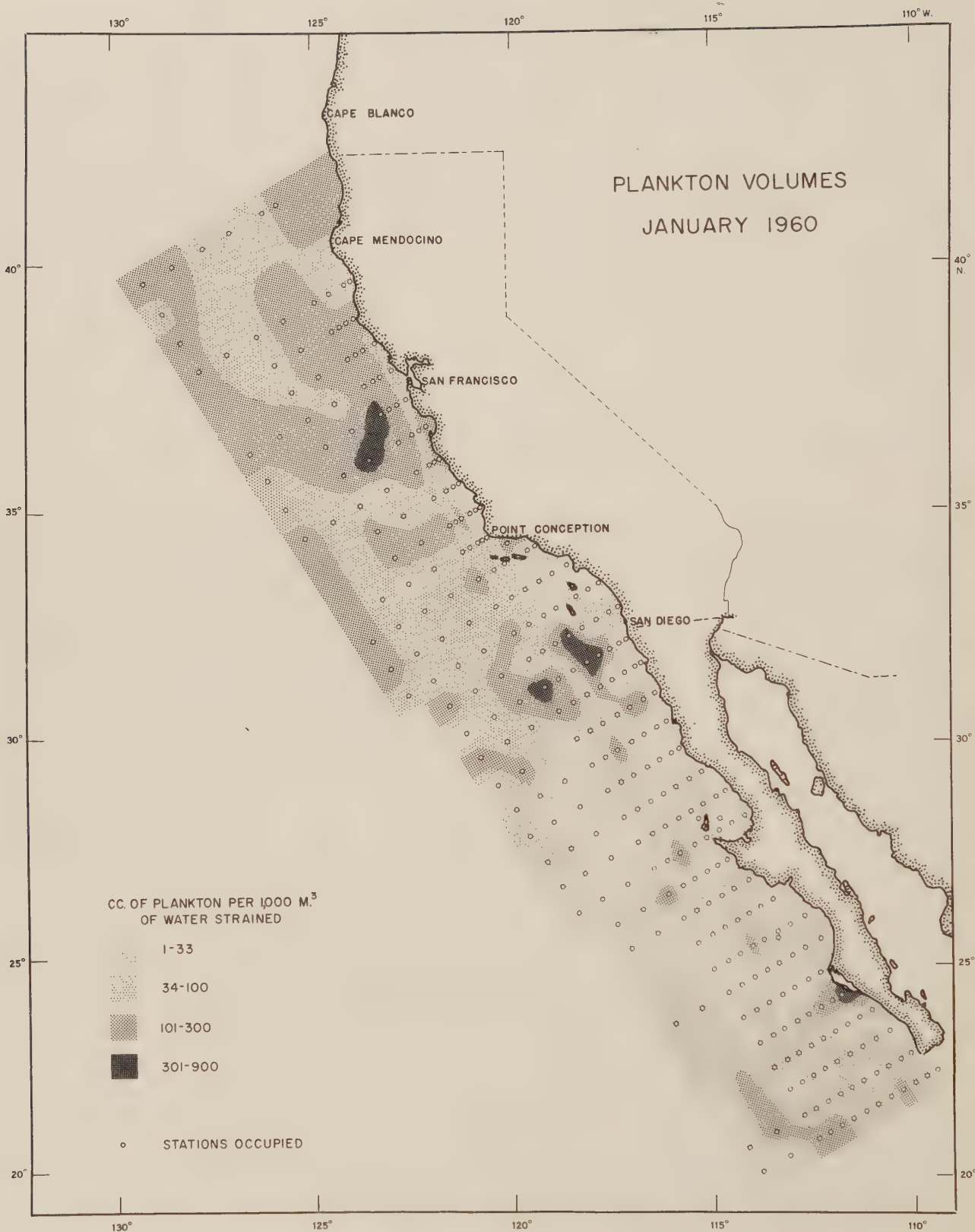


Figure 4.--Plankton volumes, January 1960.

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³ Small organisms	
				Start	End			Total	cc. cc.
Cruise 6001, January 9-February 12, 1960									
40.55	41°14.5'	125°42.0'	2-4	0706	0720	640	0-92	150	150
40.60	41°02.0'	126°10.0'	2-4	0326	0341	695	0-128	91	91
40.70	40°40'	126°56'	2-3	2156	2211	535	0-125	88	88
40.80	40°24'	127°40.5'	2-3	0016	0031	625	0-101	64	64
40.90	40.03.2'	128°24'	2-2	1606	1621	554	0-113	105	105
40.100	39°43'	129°07.5'	2-2	0956	1011	601	0-114	166	166
43.100	39°12.7'	128°52.5'	2-2	0526	0541	570	0-124	75	75
47.100	38°39'	128°09.5'	1-31	2226	2241	546	0-135	227	227
50.47	39°45.9'	123°54.5'	1-28	0728	0736	421	0-61	37	37
50.50	39°40'	124°07.3'	1-28	1016	1034	604	0-133	65	55
50.55	39°29.5'	124°29.5'	1-29	1604	1621	522	0-139	75	75
50.60	39°20'	124°50'	1-29	1910	1925	540	0-125	296	245
50.70	39°01'	125°36'	1-30	0021	0036	470	0-142	221	221
50.80	38°38.5'	126°19.5'	1-30	0931	0946	520	0-134	129	98
50.90	38°19'	127°03'	1-30	1416	1431	782	0-84	78	78
50.100	38°02'	127°50'	1-31	1051	1106	550	0-121	225	135
53.52	39°02.5'	123°49.5'	1-28	0303	0311	291	0-61	158	158
53.55	38°57.4'	124°04.5'	1-28	0121	0136	574	0-104	423	294
53.57	38°58.2'	124°13.5'	1-27	2311	2326	538	0-117	141	141
53.60	38°52.5'	124°27.5'	1-27	2041	2056	535	0-115	247	179
53.70	38°28'	125°05.8'	1-27	1601	1616	694	0-77	114	114
53.80	37°59.5'	125°51'	1-27	1101	1116	612	0-102	83	83
57.51	38°30.3'	123°22.5'	1-24	0233	0242	327	0-81	34	34
57.55	38°21.2'	123°44.4'	1-24	0621	0636	608	0-106	225	112
57.57	38°18'	123°49'	1-26	1715	1731	709	0-106	230	230
57.60	38°12'	124°01'	1-26	1951	2006	680	0-97	173	141
57.70	37°49.5'	124°46'	1-27	0126	0140	470	0-141	157	157
57.80	37°29'	125°29'	1-27	0636	0651	723	0-65	113	53
60.52	37°54'	123°01.9'	1-23	2218	2226	319	0-57	35	35
60.55	37°46'	123°19.3'	1-23	2021	2036	488	0-138	215	117
60.57	37°43.5'	123°23.7'	1-23	1816	1831	633	0-115	209	199
60.60	37°39'	123°44.7'	1-23	1431	1446	550	0-119	127	127
60.70	37°28'	124°08'	1-23	1126	1141	555	0-121	99	99
60.80	37°06'	124°55'	1-23	0558	0616	681	0-125	225	225
60.90	36°44.3'	125°41'	1-23	0056	0111	507	0-128	101	101
60.100	36°22.6'	126°25'	1-22	1956	2011	556	0-123	271	271
63.52	37°17.6'	122°36.7'	2-11	1228	1236	281	0-66	114	50
63.55	37°11'	122°50'	2-11	1416	1431	497	0-132	254	171
63.57	37°06.6'	122°58.5'	2-11	1616	1631	576	0-104	191	121
63.60	36°59'	123°12'	2-11	1846	1901	476	0-148	736	319
63.70	36°42'	123°56'	2-11	2341	2356	495	0-114	267	196
63.80	36°22'	124°47'	2-12	0451	0505	593	0-95	336	224
63.100	35°42'	126°05.5'	1-22	1436	1451	538	0-125	102	71
67.50	36°46'	122°10.7'	2-13	0321	0336	572	0-117	232	184
67.53	36°42.5'	122°17.5'	2-13	0041	0056	504	0-133	77	77
67.55	36°38.5'	122°26.5'	2-12	2241	2256	502	0-118	225	225
67.60	36°29'	122°47.5'	2-12	1941	1956	574	0-117	310	169
67.70	36°09'	123°31.5'	2-12	1441	1456	574	0-102	143	603
67.80	35°47.4'	124°13'	2-12	1001	1016	543	0-123	510	219
67.100	35°13.1'	125°30'	1-22	0931	0946	441	0-150	93	93
70.51	36°08.8'	121°50.5'	1-19	2241	2256	501	0-133	108	108
70.53	36°06.5'	121°54.3'	1-20	0026	0041	514	0-134	84	84
70.55	36°03'	122°02'	1-20	0231	0246	511	0-140	76	76
70.60	35°55.6'	122°23.5'	1-20	0556	0610	672	0-95	289	246
70.70	35°38'	123°01'	1-20	1241	1256	522	0-127	84	84
70.80	35°19'	123°39.5'	1-20	1810	1826	565	0-133	96	96
70.90	34°55.7'	124°31'	1-21	1046	1100	493	0-136	108	83
70.100	34°38.5'	125°04.6'	1-22	0136	0151	506	0-133	131	131
73.51	35°35.8'	121°25.4'	1-19	1711	1726	616	0-118	86	31
73.53	35°33.2'	121°28'	1-19	1556	1611	564	0-109	9	9

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m. ³	
								Total	Small organisms
				Start	End	m. ³	m.	cc.	cc.
73.55	35°28.3'	121°33'	1-19	1416	1430	580	0-109	119	85
73.60	35°20'	121°55.7'	1-19	1141	1156	524	0-130	404	88
73.70	35°12.5'	122°41'	1-19	0721	0735	526	0-131	53	53
73.80	34°45'	123°20.5'	1-19	0225	0240	453	0-151	397	260
77.50	35°04.1'	120°52.5'	1-17	0940	0955	627	0-103	8	8
77.51	35°02.4'	120°55.7'	1-17	0849	0904	718	0-86	11	11
77.53	34°58'	121°04'	1-17	0656	0710	653	0-105	23	23
77.55	34°53.7'	121°14'	1-17	0435	0450	552	0-139	123	107
77.57	34°50.1'	121°20.5'	1-18	0911	0926	517	0-140	35	35
77.60	34°41'	121°33.7'	1-18	1156	1211	645	0-106	158	118
77.70	34°25'	122°14'	1-18	1701	1715	520	0-128	106	106
77.80	34°10'	122°55'	1-18	2136	2151	571	0-127	434	263
80.52	34°25.1'	120°35.1'	1-16	2336	2351	492	0-143	47	47
80.53	34°20.5'	120°42.8'	1-16	2201	2216	468	0-156	53	53
80.55	34°18.6'	120°48'	1-16	1955	2010	590	0-125	54	54
80.57	34°15'	121°03'	1-16	1701	1716	578	0-120	50	50
80.60	34°09'	121°11.7'	1-16	1410	1426	542	0-130	98	98
80.70	33°39'	121°54'	1-16	0806	0821	514	0-129	99	99
80.80	33°29.5'	122°35'	1-15	1714	1729	548	0-141	33	33
80.90	33°05.5'	123°12'	1-15	1111	1126	572	0-126	56	56
82.47	34°15'	119°59'	1-13	0251	0306	570	0-112	105	105
83.40	34°13.6'	119°22.5'	1-12	2150	2152	101	0-10	50	50
83.43	34°07.2'	119°34.5'	1-12	2340	2355	467	0-141	30	30
83.51	33°51'	120°08'	1-13	2021	2035	458	0-146	48	48
83.55	33°43.5'	120°24'	1-13	2305	2320	530	0-139	64	64
83.60	33°33.9'	120°44.8'	1-14	0215	0230	549	0-129	102	102
83.70	33°14'	121°24.6'	1-14	0721	0736	571	0-114	79	79
83.80	32°53.5'	122°07.5'	1-14	1236	1251	441	0-164	54	54
83.90	32°32.5'	122°47.5'	1-14	1800	1814	473	0-144	87	87
83.100	32°14'	123°28.5'	1-14-15	2355	0011	609	0-137	133	133
87.35	33°50.5'	118°37.5'	1-12	1636	1651	492	0-144	18	18
87.40	33°40'	118°59'	1-12	1326	1341	478	0-140	15	15
87.45	33°29.5'	119°19'	1-12	1015	1028	481	0-136	15	15
87.50	33°20'	119°39.5'	1-12	0600	0608	416	0-27	12	12
87.55	33°10'	120°00.5'	1-12	0049	0104	444	0-137	72	72
87.60	32°57'	120°21'	1-11	2221	2235	453	0-145	77	77
87.70	32°39'	121°01'	1-11	1726	1741	550	0-138	89	75
87.80	32°19'	121°44'	1-11	1221	1234	583	0-106	53	53
87.90	31°59'	122°23'	1-11	0643	0658	435	0-163	87	87
87.100	31°38.5'	123°05'	1-11	0111	0126	519	0-128	131	131
90.28	33°28'	117°46.7'	1-8	2206	2220	542	0-134	31	31
90.32	33°21.3'	118°03.5'	1-9	0112	0125	759	0-79	25	25
90.37	33°10.2'	118°23.4'	1-9	0506	0521	547	0-137	40	40
90.45	32°56'	118°56.5'	1-9	0941	0954	475	0-133	13	13
90.50	32°44.6'	119°19'	1-9	1403	1415	520	0-64	10	10
90.55	32°34'	119°39'	1-9	1708	1723	506	0-103	53	53
90.60	32°24'	119°59'	1-9	2121	2136	452	0-132	133	133
90.70	32°03.9'	120°39'	1-10	0226	0240	596	0-100	87	87
90.80	31°42.8'	121°19.5'	1-10	0907	0921	475	0-140	72	72
90.90	31°25'	121°59'	1-10	1425	1440	378	0-130	79	79
90.100	31°05'	122°39'	1-10	1956	2012	528	0-142	83	83
93.28	32°54.6'	117°22'	1-8	1742	1756	501	0-135	38	38
93.30	32°48.7'	117°31.3'	1-8	1936	1951	503	0-139	34	34
93.35	32°40.5'	117°51.5'	1-8	2216	2231	530	0-124	36	36
93.40	32°29.5'	118°11.5'	1-9	0116	0131	502	0-141	74	74
93.45	32°17.8'	118°33'	1-9	0400	0415	500	0-139	328	328
93.50	32°06'	118°52.5'	1-9	0716	0731	534	0-137	180	180
93.55	31°54.9'	119°11'	1-9	0958	1016	646	0-123	46	46
93.60	31°46'	119°29'	1-9	1336	1351	514	0-140	27	27
93.70	31°29.6'	120°05.4'	1-9	1906	1921	526	0-141	139	139

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³	
				Start	End			Total cc.	Small organisms cc.
93.80	31°12.3'	120°41.2'	1-10	0136	0151	492	0-141	47	47
93.90	30°56.2'	121°15.2'	1-10	0721	0736	416	0-139	122	122
97.30	32°14.5'	117°07.8'	1-12	0139	0143	134	0-36	45	45
97.32	32°10.7'	117°14.5'	1-12	0016	0030	508	0-143	26	26
97.35	32°03'	117°29'	1-11	2126	2141	532	0-128	197	180
97.40	31°55'	117°49.5'	1-11	1901	1916	484	0-140	506	506
97.45	31°47.3'	118°06.3'	1-11	1616	1630	469	0-140	425	425
97.50	31°37'	118°30.5'	1-11	1331	1346	490	0-139	39	39
97.55	31°28.6'	118°48.5'	1-11	1031	1046	448	0-136	134	134
97.60	31°18.1'	119°12'	1-11	0626	0641	537	0-138	555	555
97.70	30°54'	119-50'	1-11	0006	0021	515	0-143	117	117
97.80	30°30'	120°29.3'	1-10	1756	1811	558	0-139	90	90
97.90	30°18.2'	121°08'	1-10	1231	1246	518	0-141	19	19
100.29	31°42.2'	116°43.5'	1-13	0743	0751	278	0-72	29	29
100.30	31°40.7'	116°47'	1-13	0846	0901	498	0-129	12	12
100.35	31°31'	117°06.6'	1-13	1126	1141	483	0-136	8	8
100.40	31°18.6'	117°25'	1-13	1511	1526	482	0-143	6	6
100.45	31°08'	117°45.3'	1-13	1751	1806	483	0-141	108	108
100.50	30°58'	118°03.6'	1-13	2111	2126	614	0-107	47	47
100.55	30°48'	118°22.4'	1-14	0006	0021	458	0-143	175	175
100.60	30°39'	118°39.5'	1-14	0336	0351	486	0-138	150	150
100.70	30°20.5'	119°27.5'	1-14	1346	1401	485	0-140	62	62
100.80	31°01.5'	119°58'	1-14	1931	1946	486	0-139	70	70
100.90	29°41.9'	120°30.9'	1-15	0116	0130	468	0-144	120	120
103.30	31°04.2'	116°25.8'	1-17	0309	0314	186	0-48	32	32
103.35	30°53.5'	116°45.3'	1-17	0016	0031	502	0-134	158	158
103.40	30°45.7'	117°05.3'	1-16	2056	2111	502	0-137	429	150
103.45	30°39.2'	117°22.8'	1-16	1801	1816	508	0-139	93	93
103.50	30°30'	117°42'	1-16	1536	1551	487	0-140	43	43
103.55	30°21.4'	118°03.3'	1-16	1201	1216	484	0-147	72	72
103.60	30°07'	118°27.9'	1-16	0746	0800	519	0-134	25	25
103.80	29°23.5'	119°40'	1-15	1211	1226	520	0-135	110	110
103.90	29°04'	120°00'	1-15	0705	0720	501	0-140	24	24
107.32	30°25.8'	116°11'	1-17	1316	1331	492	0-138	16	16
107.35	30°19.4'	116°22.7'	1-17	1616	1631	499	0-140	4	4
107.40	30°08.4'	116°42.6'	1-17	1956	2011	521	0-135	17	17
107.45	30°00'	117°04'	1-17	2246	2301	517	0-139	135	56
107.50	30°48.4'	117°20.9'	1-18	0146	0200	497	0-142	147	147
107.55	29°35'	117°39.5'	1-18	0436	0451	498	0-141	68	68
107.60	29°25'	117°57.3'	1-18	0826	0841	518	0-130	10	10
107.70	29°12'	118°40'	1-18	1411	1426	487	0-139	25	25
107.80	28°52'	119°19'	1-18	1941	1956	578	0-114	43	43
107.90	28°31.2'	119°57'	1-19	0106	0121	482	0-142	48	48
110.33	29°50.4'	115°52.5'	1-21	1038	1045	230	0-53	9	9
110.35	29°47'	116°01.7'	1-21	0906	0921	519	0-135	6	6
110.40	29°40'	116°22.1'	1-21	0551	0606	512	0-139	16	16
110.45	29°29.5'	116°41.5'	1-21	0236	0251	509	0-137	41	41
110.50	29°18'	117°01.3'	1-20-21	2356	0011	489	0-140	74	74
110.55	29°07'	117°21.1'	1-20	2036	2051	485	0-146	37	37
110.60	28°54.7'	117°38.4'	1-19	2346	0000	497	0-142	48	48
110.70	28°36.0'	118°19.5'	1-19	1746	1801	511	0-140	14	14
110.80	28°21'	118°57.5'	1-19	1226	1241	489	0-140	25	25
110.90	27°53.1'	119°35.9'	1-19	0618	0633	502	0-139	34	34
113.30	29°22'	115°17.2'	1-21	1718	1722	155	0-33	13	13
113.35	29°12.1'	115°38.7'	1-21	2021	2036	497	0-131	34	34
113.40	29°02.7'	115°57.4'	1-21	2316	2331	500	0-136	42	42
113.45	28°50'	116°15'	1-22	0156	0211	500	0-141	26	26
113.50	28°37.5'	116°32'	1-22	0516	0531	504	0-140	32	32
113.55	28°24.3'	116°49.6'	1-22	0736	0751	502	0-139	44	44
113.60	28°14.5'	117°16.3'	1-22	1046	1101	516	0-137	12	12

Table 5. --Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m. ³	
								Total	Small organisms
				Start	End	m. ³	m.	cc.	cc.
113.70	27°57'	117°55'	1-22	1816	1831	512	0-139	20	20
113.80	27°41.5'	118°30.5'	1-22	2306	2321	505	0-141	111	59
113.90	27°26'	119°09.9'	1-23	0411	0426	492	0-143	43	43
117.26	28°54.7'	114°41.2'	1-25	0113	0120	238	0-64	13	13
117.30	28°48'	114°55'	1-24	2313	2322	343	0-90	12	12
117.35	28°37.5'	115°17.2'	1-24	2026	2041	483	0-140	52	52
117.40	28°26.3'	115°35.5'	1-24	1706	1721	478	0-143	21	21
117.45	28°16.3'	115°55.8'	1-24	1326	1341	498	0-142	56	56
117.50	28°08'	116°16.3'	1-24	1046	1101	518	0-136	37	37
117.55	27°58'	116°37.2'	1-24	0516	0531	497	0-139	48	48
117.60	27°48'	116°56'	1-24	0226	0241	494	0-143	30	30
117.70	27°28'	117°32.7'	1-23	2056	2111	511	0-137	22	22
117.80	27°07'	118°09.5'	1-23	1511	1526	500	0-141	14	14
117.90	26°47.2'	118°44.7'	1-23	1006	1021	514	0-134	14	14
118.39	28°17.4'	115°23.9'	1-26	0016	0031	459	0-141	22	22
119.33	28°17.3'	114°51.2'	1-25	1052	1103	385	0-93	10	10
120.25	28°25'	114°14.6'	1-25	0544	0548	147	0-35	54	54
120.30	28°12.9'	114°34.5'	1-25	0838	0847	327	0-82	24	24
120.35	28°03'	114°55.4'	1-25	1258	1305	212	0-55	9	9
120.40	27°56.1'	115°14.5'	1-25	2104	2108	153	0-28	46	46
120.45	27°43'	115°33'	2-5	1621	1636	497	0-140	62	62
120.50	27°27.5'	115°55.5'	2-5	1221	1236	494	0-130	123	123
120.55	27°20'	116°13.5'	2-5	0956	1010	483	0-138	52	52
120.60	27°11'	116°39'	2-5	0636	0651	481	0-139	6	6
120.70	26°53.5'	117°13'	2-5	0121	0136	482	0-140	21	21
120.80	26°32.5'	117°49'	2-4	2006	2021	384	0-139	18	18
120.90	26°13'	118°27'	2-4	1501	1515	497	0-138	4	4
123.37	27°24'	114°40'	2-3	0718	0725	247	0-62	32	32
123.42	27°14'	114°59'	2-3	0931	0946	522	0-134	19	19
123.45	27°08'	115°11.5'	2-3	1151	1205	491	0-132	22	22
123.50	26°58'	115°31'	2-3	1431	1445	476	0-136	90	90
123.55	26°48.5'	115°49.5'	2-3	1926	1941	478	0-144	52	52
123.60	26°39'	116°11'	2-3	2141	2156	480	0-139	112	112
123.70	26°21.3'	116°49'	2-4	0226	0241	513	0-134	35	35
123.80	25°59'	117°25.5'	2-4	0806	0821	509	0-135	8	8
127.34	26°55'	114°06.5'	2-3	0208	0215	239	0-63	54	54
127.40	26°43.5'	114°29'	2-2	2125	2141	489	0-138	55	55
127.45	26°33'	114°48.5'	2-2	1851	1906	469	0-147	32	32
127.50	26°25.7'	115°06'	2-2	1606	1621	476	0-137	15	15
127.55	26°15.5'	115°25.5'	2-2	1331	1345	499	0-136	42	42
127.60	26°08'	115°43'	2-2	1026	1041	474	0-142	19	19
127.70	25°46'	116°23'	2-2	0516	0531	489	0-142	27	27
127.80	25°24'	117°03'	2-1	2056	2111	493	0-139	20	20
130.30	26°29'	113°29'	1-31	1918	1925	247	0-63	32	32
130.35	26°19'	113°48'	1-31	2141	2155	469	0-139	30	30
130.40	26°09'	114°07'	2-1	0026	0041	496	0-137	42	42
130.45	25°58.5'	114°26.5'	2-1	0321	0336	497	0-138	52	52
130.50	25°49'	114°45'	2-1	0616	0630	478	0-136	29	29
130.55	25°39'	115°04'	2-1	0831	0845	497	0-136	16	16
130.60	25°29'	115°24'	2-1	1041	1056	485	0-139	4	4
133.25	26°04.5'	112°48'	1-31	1203	1211	281	0-69	36	36
133.30	25°54.5'	113°07.5'	1-31	0911	0925	496	0-136	24	24
133.35	25°44.5'	113°26.5'	1-31	0521	0536	489	0-138	45	45
133.40	25°33.5'	113°37.5'	1-31	0121	0136	522	0-142	56	56
133.45	25°23'	113°59.5'	1-30	2321	2335	549	0-131	104	104
133.50	25°13'	114°20.5'	1-30	2016	2031	518	0-139	31	31
133.55	25°03'	114°42'	1-30	1751	1806	498	0-141	32	32
133.60	24°54.5'	115°02'	1-30	1516	1531	502	0-143	18	18
134.36	25°34'	113°22.7'	1-31	0341	0356	499	0-140	46	46
137.23	25°34'	112°19'	1-29	0023	0030	261	0-60	92	92

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m ³ Small	
				Start	End			Total	organisms
						m. ³	m.	cc.	cc.
137.30	25°20'	112°46'	1-29	0337	0348	393	0-110	84	84
137.35	25°11'	113°05.3'	1-29	0611	0626	577	0-118	28	28
137.40	25°02'	113°25'	1-29	0856	0911	507	0-132	37	37
137.45	24°53.3'	113°43.7'	1-29	1126	1141	497	0-138	16	16
137.50	24°42'	114°04'	1-29	1356	1411	510	0-133	29	29
137.55	24°33'	114°26'	1-29	1706	1721	515	0-135	16	16
137.60	24°23.5'	114°43'	1-29	1911	1926	496	0-136	20	20
137.70	24°02'	115°19.2'	1-29-30	2356	0011	554	0-129	40	40
137.80	23°40'	115°55'	1-30	0436	0451	512	0-135	82	35
140.30	24°45.5'	112°24'	1-28	1345	1356	382	0-104	52	52
140.35	24°35.5'	112°42.5'	1-28	1131	1146	468	0-138	13	13
140.40	24°25.5'	113°02'	1-28	0846	0901	458	0-138	20	20
140.45	24°15'	113°21'	1-28	0606	0621	494	0-132	16	16
140.50	24°05.5'	113°39.5'	1-28	0256	0311	494	0-134	55	55
140.55	23°55.5'	113°58.5'	1-28	0016	0031	511	0-138	41	41
140.60	23°45.5'	114°17.5'	1-27	1851	1906	497	0-134	32	32
143.26	24°19'	111°48'	1-26	1948	1955	240	0-63	362	362
143.30	24°11'	112°03'	1-26	2131	2145	502	0-138	263	263
143.35	24°01'	112°22'	1-27	0001	0016	480	0-142	125	125
143.40	23°50.5'	112°41'	1-27	0301	0316	517	0-138	87	87
143.45	23°45'	113°00'	1-27	0556	0611	474	0-142	38	38
143.50	23°33.5'	113°19'	1-27	0806	0820	479	0-138	8	8
143.55	23°23'	113°37'	1-27	1051	1106	510	0-131	39	39
143.60	23°10.5'	113°55.5'	1-27	1306	1320	474	0-138	25	25
147.20	23°56'	111°03.5'	1-26	1421	1434	435	0-118	62	62
147.25	23°49'	111°17'	1-26	1201	1215	470	0-140	21	21
147.30	23°36.5'	111°37.3'	1-26	0847	0900	440	0-119	16	16
147.35	23°25'	112°00'	1-26	0621	0636	493	0-140	14	14
147.40	23°16'	112°19'	1-26	0306	0321	519	0-142	46	46
147.45	23°05.5'	112°37.5'	1-26	0026	0041	490	0-140	35	35
147.50	22°55.5'	112°56.5'	1-25	2126	2141	497	0-140	70	70
147.55	22°45.5'	113°15'	1-25	1856	1911	499	0-139	62	62
147.60	22°35.5'	113°33.5'	1-25	1601	1616	524	0-135	46	46
150.19	23°23.5'	110°39'	1-24	1201	1216	518	0-137	31	31
150.25	23°11'	111°01'	1-24	1506	1521	476	0-141	71	71
150.30	23°00.5'	111°20'	1-24	1756	1810	554	0-132	34	34
150.35	22°51.0'	111°38.5'	1-24	2041	2055	502	0-132	66	66
150.40	22°41.5'	111°57'	1-24	2256	2311	482	0-139	52	52
150.45	22°33'	112°16'	1-25	0151	0205	490	0-138	92	31
150.50	22°22'	112°35'	1-25	0401	0415	490	0-134	47	47
150.55	22°13'	112°54'	1-25	0621	0636	525	0-137	30	30
150.60	22°04'	113°09.5'	1-25	0836	0850	532	0-137	30	30
153.16	22°55'	110°07.5'	1-15	2156	2211	510	0-139	104	45
153.20	22°47'	110°22'	1-16	0046	0101	476	0-144	113	71
153.25	22°37'	110°40'	1-16	0431	0446	476	0-142	90	59
153.30	22°27'	110°59'	1-16	0726	0741	480	0-139	10	10
153.35	22°17'	111°17.5'	1-24	0351	0406	508	0-135	57	57
153.40	22°07'	111°36.5'	1-24	0041	0055	477	0-139	63	63
153.45	21°57'	111°55'	1-23	2131	2145	521	0-134	58	58
153.50	21°46.5'	112°13'	1-23	1831	1846	527	0-132	169	87
153.55	21°36.5'	112°31.5'	1-23	1531	1546	523	0-137	61	61
153.60	21°26.5'	112°50.5'	1-23	1221	1236	512	0-142	88	88
153.70	21°01.5'	113°26'	1-23	0646	0701	548	0-135	115	115
153.80	20°46'	114°04'	1-23	0141	0156	492	0-138	79	26
157.10	22°33'	109°23'	1-17	0146	0201	549	0-172	25	25
157.15	22°23'	109°42'	1-16	2221	2236	491	0-136	100	100
157.20	22°13'	110°00'	1-16	1846	1901	512	0-133	76	76
157.25	22°02.5'	110°19'	1-16	1606	1621	473	0-143	101	101
157.30	21°52.5'	110°37.5'	1-16	1211	1226	510	0-133	55	55
157.35	21°42.5'	110°56'	1-21	1921	1936	565	0-124	115	90

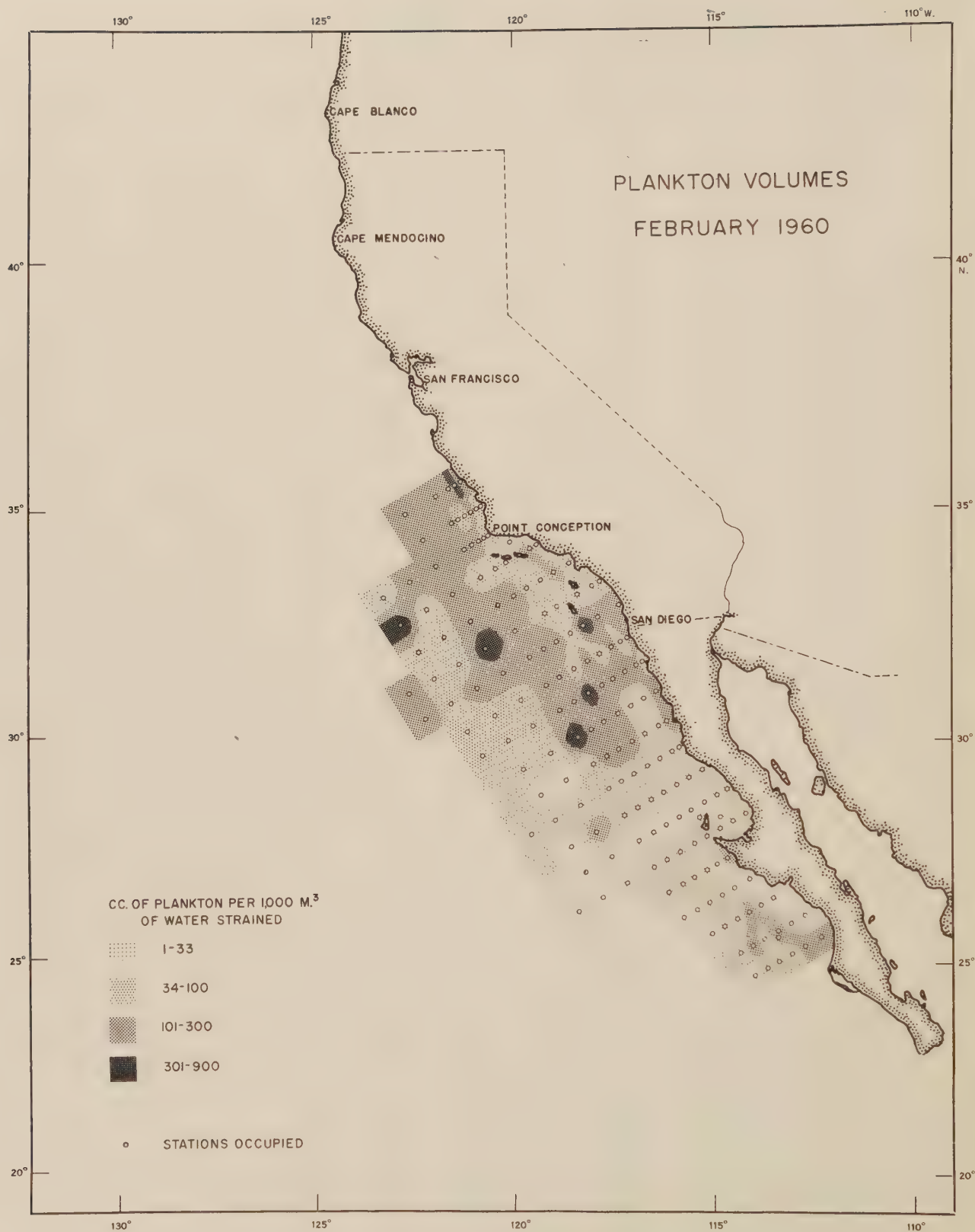


Figure 5.--Plankton volumes, February 1960.

Table 5. --Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³	
				Start	End			Total cc.	Small organisms cc.
157.40	21°33'	111°15.5'	1-21	2136	2151	544	0-122	116	85
157.45	21°24'	113°34'	1-22	0026	0041	570	0-134	68	68
157.50	21°15'	111°53'	1-22	0246	0301	518	0-135	478	154
157.55	21°06.3'	112°11'	1-22	0541	0556	536	0-121	177	177
157.60	20°53.5'	112°30.5'	1-22	0806	0821	512	0-134	225	225
157.70	20°32'	113°06'	1-22	1241	1256	517	0-130	33	33
157.80	20°12'	113°42'	1-22	1726	1741	590	0-121	15	15
Cruise 6002, February 13-March 3, 1960									
73.51	35°35'	121°21'	2-19	2016	2030	498	0-131	114	114
73.53	35°31.7'	121°28.5'	2-19	1820	1836	430	0-131	674	377
73.55	35°27'	121°37'	2-19	1621	1636	469	0-137	132	119
73.60	35°18'	121°57.5'	2-19	1259	1316	446	0-138	531	284
73.70	35°03'	122°36'	2-19	0805	0821	549	0-134	184	184
77.50	35°04.5'	120°52'	2-20	1017	1029	457	0-119	83	83
77.51	35°02'	120°56.3'	2-20	1101	1116	500	0-137	48	48
77.53	34°58.1'	121°04.6'	2-20	1211	1226	445	0-132	285	285
77.55	34°54.5'	121°13'	2-20	1346	1401	455	0-139	53	53
77.57	34°50.1'	121°21.2'	2-20	1531	1546	540	0-140	78	78
77.60	34°42.8'	121°37.5'	2-20	1741	1756	489	0-133	104	104
77.70	34°24.2'	122°16'	2-20	2201	2216	394	0-141	201	140
80.52	34°24.7'	120°35.8'	2-22	1016	1030	472	0-139	76	76
80.53	34°23.1'	120°40.0'	2-22	0906	0920	454	0-145	42	42
80.55	34°19'	120°48'	2-22	0721	0736	465	0-124	125	125
80.57	34°15.5'	120°57.5'	2-22	0456	0511	431	0-122	158	158
80.60	34°09'	121°09'	2-22	0206	0221	552	0-138	107	107
80.70	33°48.5'	121°51'	2-21	1916	1931	492	0-136	368	286
80.80	33°28.7'	122°32'	2-21	1336	1350	515	0-137	194	194
80.90	33°05'	123°12'	2-21	0836	0851	417	0-133	82	82
82.47	34°15'	119°58'	2-22	1356	1411	485	0-141	12	12
83.40	34°14'	119°22'	2-22	1750	1751	104	0-9	29	29
83.43	34°08'	119°34'	2-22	1916	1931	507	0-134	105	105
83.51	33°52'	120°07.5'	2-23	0042	0055	395	0-121	48	48
83.55	33°44'	120°24.5'	2-23	0256	0311	528	0-130	70	70
83.60	33°35.2'	120°47.5'	2-23	0531	0546	504	0-133	79	79
83.70	33°16.8'	121°24.5'	2-23	1046	1100	454	0-143	143	143
83.80	32°54'	122°08'	2-23	1541	1556	458	0-144	87	87
83.90	32°34.5'	122°47.5'	2-23	2026	2041	446	0-143	918	788
87.35	33°50'	118°37.5'	2-25	0431	0446	495	0-132	95	95
87.40	33°40'	118°58.5'	2-25	0126	0140	458	0-136	101	101
87.45	33°30'	119°19'	2-24	2256	2311	519	0-129	58	58
87.50	33°20'	119°39.5'	2-24	2033	2040	298	0-41	50	50
87.55	33°10'	120°00.5'	2-24	1821	1836	540	0-128	207	181
87.60	33°00'	120°21.5'	2-24	1521	1536	527	0-134	155	114
87.70	32°39.5'	121°02'	2-24	1051	1106	431	0-132	160	109
87.80	32°20.5'	121°41.5'	2-24	0626	0641	437	0-136	57	57
87.90	31°59'	122°24'	2-24	0121	0136	462	0-137	95	72
90.28	33°28.5'	117°46.7'	2-25	1846	1901	527	0-129	53	53
90.32	33°20.5'	118°02.9'	2-25	2116	2130	492	0-138	96	96
90.37	33°11'	118°23.7'	2-25	2341	2356	468	0-142	66	66
90.45	32°54.5'	118°56.1'	2-26	0426	0441	520	0-138	58	58
90.50	32°46.6'	119°16'	2-26	0711	0726	484	0-139	209	89
90.60	32°25'	119°57.5'	2-26	1341	1356	473	0-139	146	146
90.70	32°04.5'	120°38.5'	2-26	1826	1840	519	0-139	720	720
90.80	31°44.5'	121°19.5'	2-26	2306	2321	482	0-139	75	75
90.90	31°24'	121°59'	2-27	0341	0356	492	0-136	116	91
90.100	31°05'	122°39'	2-27	0821	0836	438	0-126	126	126
93.28	32°54.7'	117°21.8'	2-29	0331	0346	507	0-132	146	146
93.35	32°40'	117°51.5'	2-28	2226	2241	475	0-137	141	141
93.40	32°30'	118°12.5'	2-28	1936	1951	514	0-134	323	323

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³	
								Total cc.	Small organisms cc.
				Start	End				
93.45	32°20'	118°32'	2-28	1711	1726	550	0-127	56	56
93.50	32°10.5'	118°56'	2-28	1426	1440	496	0-136	111	111
93.55	32°00'	119°13.5'	2-28	1211	1226	509	0-136	204	204
93.60	31°50'	119°34'	2-28	0746	0800	483	0-130	245	245
93.70	31°30'	120°14'	2-28	0306	0320	498	0-139	223	223
93.80	31°10'	120°54.5'	2-27	2226	2241	560	0-127	127	127
93.90	30°51'	121°34.5'	2-27	1746	1801	558	0-128	81	81
93.100	30°30.5'	122°14'	2-27	1321	1336	527	0-130	102	102
97.30	32°16'	117°08.5'	2-29	1004	1009	152	0-45	204	204
97.32	32°12'	117°16.2'	2-29	1106	1120	510	0-127	22	22
97.35	32°05.5'	117°28.5'	2-29	1331	1346	481	0-140	114	114
97.40	31°56'	117°49'	2-29	1616	1631	471	0-140	83	83
97.45	31°45'	118°09.5'	2-29	1906	1920	530	0-130	198	198
97.50	31°35'	118°30'	2-29	2121	2136	458	0-141	92	92
97.55	31°24'	118°49'	2-29	2341	2356	512	0-133	308	201
97.60	31°12'	119°07.0'	3-1	0201	0216	457	0-142	153	153
97.70	30°49'	119°44'	3-1	0705	0720	445	0-138	85	85
97.80	30°35'	120°31'	3-1	1406	1421	498	0-136	100	100
97.90	30°15.5'	121°10.5'	3-1	1841	1856	493	0-136	39	39
100.29	31°42.2'	116°43.2'	3-3	0742	0754	438	0-109	121	52
100.30	31°40.5'	116°46.5'	3-3	0641	0656	480	0-138	456	154
100.35	31°36'	117°09'	3-3	0351	0406	452	0-139	111	111
100.40	31°25'	117°27.3'	3-3	0131	0146	423	0-143	114	114
100.45	31°14'	117°48.5'	3-2	2236	2251	476	0-140	113	113
100.50	31°04'	118°10'	3-2	1956	2010	505	0-133	362	362
100.55	30°53'	118°30'	3-2	1721	1736	491	0-141	155	155
100.60	30°41'	118°48'	3-2	1411	1426	506	0-140	107	107
100.70	30°29'	119°30'	3-2	0946	1000	500	0-133	74	74
100.80	30.05'	120°10'	3-2	0420	0436	535	0-130	41	41
100.90	29°40.5'	120°47'	3-1	2251	2306	498	0-131	62	62
103.30	31°05.2'	116°25'	2-27	1614	1619	203	0-30	143	143
103.35	30°55.4'	116°45.2'	2-27	1401	1416	539	0-114	100	100
103.40	30°47'	117°03'	2-27	1141	1156	545	0-122	143	51
103.45	30°38'	117°21.5'	2-27	0930	0944	554	0-117	432	267
103.50	30°26.5'	117°45'	2-27	0655	0710	644	0-97	312	258
103.55	30°17.5'	118°01'	2-27	0440	0454	645	0-99	222	222
103.60	30°07.5'	118°21'	2-27	0126	0141	551	0-124	363	363
103.70	29°45.2'	119°02.5'	2-26	2036	2051	561	0-119	36	36
103.80	29°29.2'	119°38'	2-26	1626	1640	670	0-97	81	55
107.32	30°25.8'	116°11.3'	2-25	1126	1140	534	0-114	105	105
107.35	30°20'	116°23'	2-25	1306	1321	527	0-131	76	49
107.40	30°10'	116°43.3'	2-25	1536	1550	592	0-114	123	44
107.45	30°00.5'	117°02'	2-25	1816	1830	696	0-88	116	116
107.50	29°50'	117°25.5'	2-25	2055	2110	550	0-122	182	182
107.55	29°40'	117°48'	2-25	2331	2346	587	0-128	260	215
107.60	29°29'	118°13'	2-26	0221	0236	575	0-126	63	63
107.70	29°12'	118°40'	2-26	0656	0710	704	0-89	44	24
107.80	28°51.5'	119°20.5'	2-26	1156	1211	548	0-128	29	29
110.33	29°50'	115°52'	2-25	0655	0702	358	0-44	56	56
110.35	29°45.5'	116°00.3'	2-25	0531	0546	678	0-86	50	50
110.40	29°35.7'	116°20'	2-25	0251	0306	604	0-103	60	60
110.45	29°26.5'	116°39.5'	2-25	0031	0046	601	0-110	67	67
110.50	29°16'	116°59'	2-24	2211	2226	555	0-115	52	52
110.55	29°06'	117°19.2'	2-24	1946	2000	609	0-120	87	87
110.60	28°55'	117°32'	2-24	1456	1710	556	0-130	36	36
110.70	28°37'	118°17.6'	2-24	0401	0416	674	0-92	50	50
110.80	28°16'	118°58'	2-23	2245	2300	520	0-130	79	64
110.90	27°56'	119°36'	2-23	1740	1754	618	0-98	44	44
113.30	29°21'	115°18.5'	2-22	0558	0604	297	0-39	84	84
113.35	29°11.5'	115°38'	2-22	0815	0830	555	0-125	34	34
113.40	29°03'	115°57.6'	2-22	1050	1104	508	0-135	45	45

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m. ³	
				Start	End			Total	Small organisms
						m. ³	m.	cc.	cc.
113.45	28°53'	116°20'	2-22	1346	1401	545	0-133	39	39
113.50	28°46'	116°37.2'	2-22	1621	1636	627	0-98	53	53
113.55	28°38.5'	116°57'	2-22	2021	2035	609	0-102	53	53
113.60	28°30.5'	117°16.5'	2-22	2316	2331	582	0-120	45	45
113.70	28°16.8'	117°51.5'	2-23	0446	0500	729	0-87	103	103
113.80	28°04.2'	118°25'	2-23	0846	0900	512	0-142	33	33
117.26	28°56'	114°41.5'	2-22	0129	0134	204	0-36	34	34
117.30	28°48'	114°56.5'	2-21	2328	2335	308	0-58	49	49
117.35	28°38'	115°16'	2-21	2056	2110	514	0-134	25	25
117.40	28°27.8'	115°35.5'	2-20	2046	2100	536	0-125	21	21
117.45	28°16'	115°59.7'	2-20	1746	1801	560	0-118	16	16
117.50	28°07.6'	116°15'	2-20	1456	1511	494	0-156	16	16
117.55	27°56.5'	116°38'	2-20	1211	1226	541	0-129	28	28
117.60	27°46.2'	116°55.8'	2-20	1001	1016	534	0-138	22	22
117.70	27°28'	117°33.2'	2-20	0521	0535	617	0-104	32	32
117.80	27°08'	118°10.5'	2-19	2341	2356	607	0-106	28	28
118.39	28°18.5'	115°23.8'	2-20	2240	2255	565	0-126	51	51
119.33	28°19'	114°53'	2-18	0057	0108	428	0-88	33	33
120.25	28°22.5'	114°15'	2-17	2029	2033	169	0-27	53	53
120.30	28°13'	114°34'	2-17	2246	2254	315	0-77	48	48
120.35	28°03.5'	114°53.4'	2-18	0258	0306	300	0-68	87	87
120.40	27°56.5'	115°14'	2-18	1204	1208	174	0-31	52	52
120.45	27°43.6'	115°33.5'	2-18	1646	1701	711	0-91	39	39
120.50	27°33.8'	115°53.2'	2-18	1921	1936	607	0-104	74	74
120.55	27°23.9'	116°12'	2-18	2246	2300	527	0-131	72	72
120.60	27°13.3'	116°32'	2-19	0106	0121	584	0-136	60	60
120.70	26°53'	117°08.2'	2-19	0600	0614	610	0-118	26	26
120.80	26°35'	117°48'	2-19	1056	1110	469	0-142	19	19
120.90	26°13'	118°27'	2-19	1625	1640	656	0-106	15	15
123.37	27°24.2'	114°39.5'	2-17	0944	0948	186	0-25	156	156
123.42	27°20.7'	114°56'	2-17	0711	0725	728	0-85	32	32
123.45	27°15.3'	115°05.2'	2-17	0541	0556	687	0-92	39	39
123.50	27°03.8'	115°26'	2-17	0256	0311	522	0-147	92	92
123.55	26°50.5'	115°47.3'	2-17	0021	0036	564	0-127	59	59
123.60	26°38'	116°09.5'	2-16	2150	2205	596	0-136	99	99
127.34	26°53.7'	114°05.3'	2-16	0419	0426	316	0-25	22	22
127.40	26°41'	114°28'	2-16	0705	0720	780	0-75	20	20
127.45	26°32.5'	114°52'	2-16	0930	0944	534	0-124	36	36
127.50	26°24'	115°16'	2-16	1211	1226	531	0-136	87	87
127.55	26°13.2'	115°28'	2-16	1411	1426	531	0-148	24	24
127.60	26°01'	115°41.2'	2-16	1646	1700	592	0-111	15	15
130.30	26°29'	113°29'	2-15	2328	2335	252	0-47	20	20
130.35	26°18.7'	113°48.2'	2-15	2101	2116	578	0-121	74	74
130.40	26°10.2'	114°05'	2-15	1821	1836	728	0-90	144	144
130.45	26°01'	114°27'	2-15	1551	1605	624	0-106	37	37
130.50	25°51.5'	114°47.5'	2-15	1330	1345	511	0-150	37	37
130.55	25°39.5'	115°03'	2-15	1105	1120	513	0-143	21	21
133.25	26°03'	112°50.5'	2-14	1133	1141	334	0-59	27	27
133.30	25°55.2'	113°07.8'	2-14	1345	1400	508	0-131	57	57
133.35	25°46.8'	113°27.5'	2-14	1640	1655	352	0-113	117	117
133.40	25°32.1'	113°47.5'	2-14	2056	2111	460	0-132	115	98
133.45	25°21.9'	114°08.5'	2-14	2336	2351	460	0-133	143	120
133.50	25°12'	114°29.2'	2-15	0226	0241	525	0-151	55	55
134.36	25°40.4'	113°26.1'	2-14	1816	1830	424	0-123	186	153
137.23	25°29.9'	112°15'	2-14	0629	0632	188	0-24	144	144
137.30	25°15.7'	112°42.9'	2-14	0316	0331	561	0-116	102	102
137.35	25°06.5'	113°02.4'	2-14	0036	0051	609	0-129	90	90
137.40	24°59.2'	113°23'	2-13	2101	2116	576	0-137	106	59
137.45	24°51.8'	113°44.5'	2-13	1800	1815	596	0-134	35	35
137.50	24°40'	114°02'	2-13	1525	1541	627	0-150	21	21

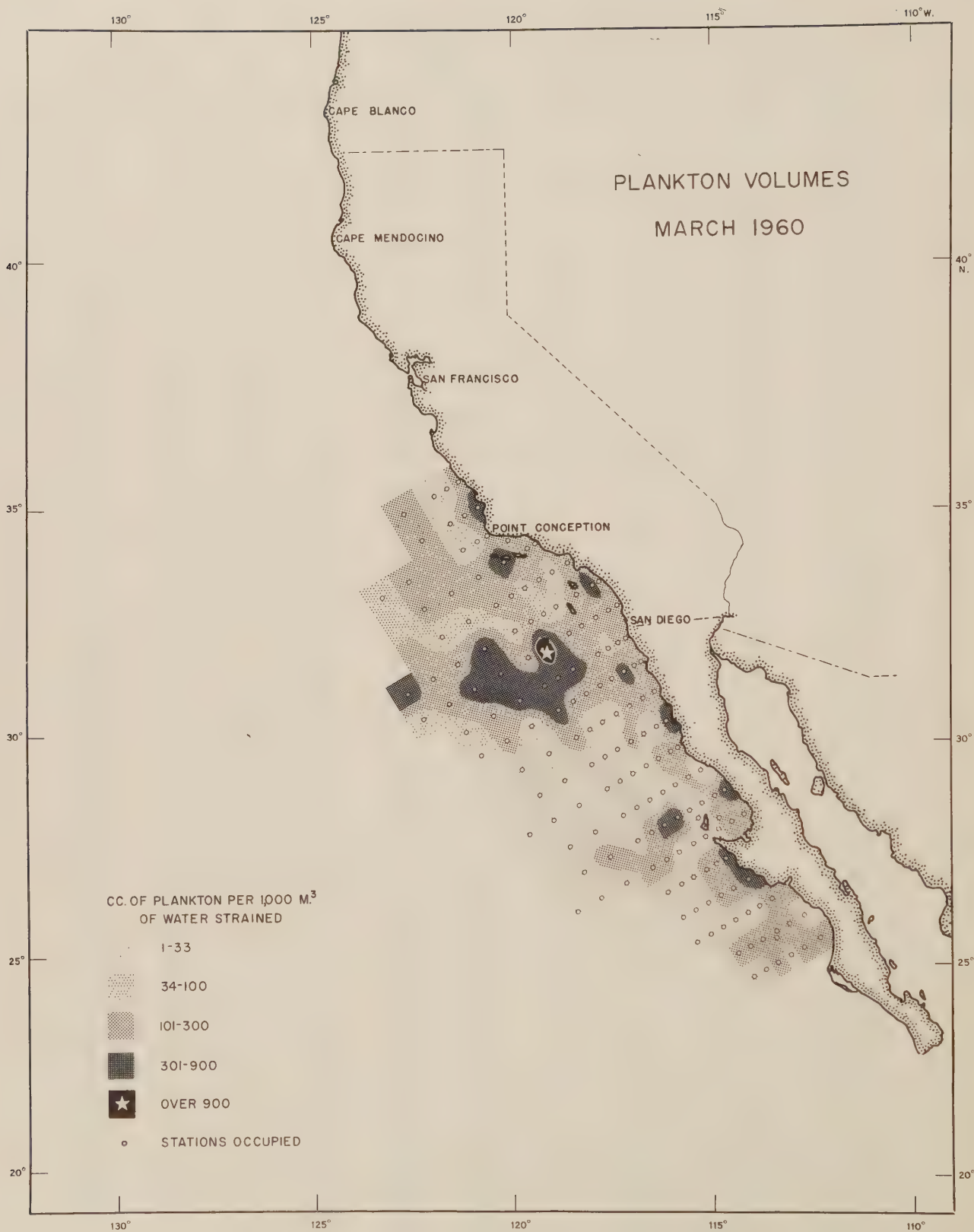


Figure 6.--Plankton volumes, March 1960.

Table 5. --Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³	
				Start	End			Total	Small organisms
Cruise 6003, March 12-28, 1960									
73.51	35°34.8'	121°20.6'	3-12	1431	1446	512	0-121	563	221
73.55	35°30.2'	121°29.9'	3-12	1321	1336	615	0-102	83	67
73.60	35°20.4'	121°51.4'	3-12	1056	1110	522	0-127	67	67
73.70	34°58.9'	122°41.5'	3-12	0526	0540	502	0-135	171	133
77.50	35°04.4'	120°50.6'	3-12	1842	1852	598	0-53	1295	838
77.55	34°55.5'	121°11.8'	3-12	2146	2200	468	0-142	314	147
77.60	34°43.5'	121°32.5'	3-13	0101	0116	448	0-154	98	98
77.70	34.18'	122°17.5'	3-13	0526	0541	496	0-143	127	127
80.52	34°24.6'	120°35.3'	3-14	1111	1126	460	0-150	194	194
80.55	34°19.3'	120°48.6'	3-14	0921	0936	457	0-155	72	72
80.60	34°04.5'	121°13.3'	3-14	0521	0536	550	0-125	65	65
80.80	33°29'	122°32'	3-13	1956	2010	500	0-132	202	202
80.90	33°05'	123°16'	3-13	1511	1526	524	0-127	93	82
82.47	34°15.2'	119°58.3'	3-14	1511	1526	516	0-136	124	124
83.40	34°13.3'	119°22'	3-14	1939	1941	95	0-7	136	136
83.43	34°08.2'	119°34.6'	3-14	1755	1811	542	0-139	203	203
83.51	33°51.2'	120°07.5'	3-15	0052	0102	348	0-88	388	388
83.60	33°32'	120°45.5'	3-15	0911	0926	540	0-125	195	165
83.70	33°12.5'	121°28'	3-15	1326	1341	490	0-137	116	116
83.80	32°58'	122°20'	3-15	1811	1826	633	0-101	103	103
87.35	33°50.9'	118°37.3'	3-17	0951	1006	493	0-143	272	272
87.40	33°40.5'	118°58.4'	3-17	0721	0735	505	0-116	73	73
87.45	33°30.5'	119°19.5'	3-17	0421	0435	494	0-124	164	164
87.50	33°21.4'	119°37.5'	3-17	0233	0240	278	0-63	93	93
87.55	33°09.9'	120°05'	3-16	2341	2356	523	0-125	186	130
87.60	33°00'	120°21.5'	3-16	2116	2131	535	0-123	153	116
87.70	32°01'	122°26'	3-16	1601	1616	547	0-126	152	97
87.80	32°23'	121°45.9'	3-16	1106	1120	522	0-141	109	56
90.28	33°28.4'	117°46.5'	3-17	1816	1831	610	0-101	184	184
90.32	33°20.6'	118°04'	3-17	2056	2110	572	0-125	373	373
90.37	33°10.2'	118°23.5'	3-17	2331	2346	549	0-137	133	117
90.45	32°54.9'	118°56.3'	3-18	0316	0331	504	0-135	97	71
90.50	32°45'	119°17.4'	3-18	0626	0640	594	0-106	74	74
90.55	32°34'	119°42'	3-18	0926	0940	598	0-112	209	201
90.60	32°25'	119°55'	3-18	1156	1211	467	0-144	113	79
90.70	32°03.8'	120°41.7'	3-18	1816	1831	502	0-135	672	672
90.80	31°42'	121°21'	3-18	2306	2321	489	0-138	176	131
90.90	31°19'	122°03'	3-19	0406	0421	455	0-140	218	218
90.100	31°05'	122°39'	3-19	0816	0830	585	0-110	487	487
93.28	32°54.6'	117°21.1'	3-21	0206	0220	551	0-113	158	158
93.30	32°49.4'	117°32.3'	3-21	0006	0021	519	0-124	125	125
93.35	32°40'	117°52.3'	3-20	2116	2131	475	0-145	139	139
93.40	32°29.9'	118°12.5'	3-20	1806	1821	513	0-123	150	150
93.45	32°22.5'	118°32.5'	3-20	1506	1520	471	0-144	446	108
93.55	32°03'	119°18.3'	3-20	0931	0946	452	0-139	997	997
93.60	31°52'	119°37'	3-20	0716	0731	439	0-150	216	216
93.70	31°32.2'	120°16.5'	3-20	0231	0246	493	0-127	902	886
93.80	31°11'	120°59'	3-19	2136	2150	524	0-135	895	872
93.90	30°53.2'	121°34'	3-19	1716	1730	478	0-140	193	193
93.100	30°31.5'	122°13'	3-19	1246	1301	484	0-142	37	37
97.30	32°15.3'	117°08.2'	3-21	0949	0954	273	0-39	103	103
97.32	32°10.8'	117°16.7'	3-21	1106	1120	490	0-116	104	104
97.35	32°05.6'	117°28.7'	3-21	1246	1301	540	0-127	72	72
97.40	31°56.5'	117°50'	3-21	1506	1520	544	0-113	182	182
97.50	31°36'	118°30'	3-21	1941	1956	513	0-125	435	408
97.55	31°25.3'	118°51.5'	3-21	2201	2216	436	0-133	335	310
97.60	31°15.5'	119°12'	3-22	0106	0120	489	0-126	521	521
97.70	30°54.5'	119°53.5'	3-22	0516	0531	590	0-99	466	466
97.80	30°37'	120°32'	3-22	0836	0851	510	0-124	363	294

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³	
				Start	End			Total cc.	Small organisms cc.
97.90	30°14.5'	121°13.5'	3-22	1341	1356	498	0-133	54	54
100.29	31°40'	116°43.3'	3-23	2336	2350	500	0-117	228	200
100.30	31°41'	116°47'	3-23	2246	2301	468	0-138	203	203
100.35	31°31'	117°05.6'	3-23	2031	2046	491	0-135	342	342
100.40	31°21'	117°27'	3-23	1811	1826	462	0-145	184	184
100.45	31°10.9'	117°46.6'	3-23	1536	1551	496	0-129	103	103
100.50	31°01'	118°07.5'	3-23	1336	1350	468	0-137	192	192
100.55	30°46.6'	118°29'	3-23	1026	1040	543	0-129	251	195
100.60	30°40.5'	118°47'	3-23	0801	0816	514	0-126	323	323
100.70	30°23.5'	119°22'	3-23	0256	0310	468	0-142	58	58
100.80	30°03'	120°03.5'	3-22	2241	2256	530	0-120	130	115
100.90	29°42'	120°44.4'	3-22	1826	1841	503	0-139	26	26
103.30	31°06'	116°24.5'	3-29	0114	0118	130	0-34	239	239
103.35	30°56'	116°45'	3-28	2231	2245	462	0-136	232	232
103.40	30°46'	117°04.5'	3-28	1951	2006	480	0-134	117	117
103.45	30°35.8'	117°28.5'	3-28	1656	1710	489	0-141	92	92
103.50	30°25'	117°47'	3-28	1426	1440	458	0-145	76	76
103.55	30°16'	118°06'	3-28	1211	1225	474	0-144	97	76
103.60	30°06'	118°25'	3-28	0906	0920	470	0-139	155	109
103.70	29°50'	119°04'	3-28	0511	0525	502	0-140	46	46
103.80	29°26.5'	119°44'	3-28	0046	0101	503	0-138	87	87
107.32	30°25.8'	116°11'	3-26	2041	2055	471	0-136	312	312
107.35	30°21.5'	116°22.5'	3-26	2216	2231	448	0-138	92	92
107.40	30°10.5'	116°44.5'	3-27	0041	0056	460	0-137	98	70
107.45	30°02'	117°05'	3-27	0301	0316	459	0-136	181	150
107.50	29°55'	117°22.5'	3-27	0516	0531	456	0-139	31	31
107.55	29°46.5'	117°41'	3-27	0731	0746	473	0-140	38	38
107.60	29°32'	118°01.5'	3-27	1016	1031	473	0-139	53	53
107.70	29°11'	118°41'	3-27	1536	1551	497	0-136	18	18
107.80	28°51.5'	119°20.5'	3-27	2011	2026	497	0-138	78	78
110.33	29°50'	115°52'	3-26	1542	1551	288	0-78	181	181
110.35	29°46'	116°00'	3-26	1421	1436	471	0-142	104	104
110.40	29°34.5'	116°23'	3-26	1126	1141	444	0-142	106	106
110.45	29°25.5'	116°41'	3-26	0911	0926	470	0-141	26	26
110.50	29°16.5'	116°59'	3-26	0656	0711	467	0-143	15	15
110.55	29°06.5'	117°19'	3-26	0421	0436	491	0-140	47	47
110.60	28°56.5'	117°38'	3-26	0126	0141	494	0-135	83	67
110.70	28°36.5'	118°18'	3-25	1741	1756	501	0-139	26	26
110.80	28°23'	119°01.5'	3-25	1246	1301	481	0-137	27	12
110.90	28°14'	119°27.5'	3-25	0911	0926	468	0-139	13	13
113.30	29°22'	115°18'	3-24	0248	0255	227	0-53	22	22
113.35	29°11.5'	115°38'	3-24	0456	0510	460	0-134	233	233
113.40	29°02'	115°57'	3-24	0711	0726	516	0-135	35	35
113.45	28°52'	116°18'	3-24	0946	1001	473	0-141	40	40
113.50	28°41.5'	116°36.5'	3-24	1210	1226	455	0-145	31	31
113.55	28°32'	116°57'	3-24	1511	1526	468	0-139	75	75
113.60	28°22'	117°16.5'	3-24	1726	1740	475	0-138	13	13
113.70	28°03.5'	117°52'	3-24	2221	2236	472	0-140	42	42
113.80	27°46'	118°27'	3-25	0236	0251	426	0-144	71	71
117.26	28°56'	114°41.5'	3-23	2203	2211	246	0-69	524	524
117.30	28°48'	114°56.5'	3-23	2013	2021	260	0-70	115	115
117.35	28°38'	115°16'	3-23	1736	1751	474	0-142	59	59
117.40	28°28'	115°35.5'	3-23	0156	0211	381	0-115	84	84
117.45	28°10.5'	116°04.5'	3-22	2017	2030	380	0-111	313	313
117.50	28°04'	116°20'	3-22	1442	1456	363	0-106	311	311
117.55	27°57.5'	116°35'	3-22	1106	1121	321	0-134	103	103
117.60	27°48'	116°53'	3-22	0716	0731	466	0-135	120	69
117.70	27°28'	117°32.5'	3-22	0301	0315	517	0-137	110	110
117.80	27°08'	118°10.5'	3-21	2131	2146	502	0-134	56	46
118.39	28°18.5'	115°23.7'	3-23	0411	0426	451	0-138	60	60

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³	
								Total cc.	Small organisms cc.
				Start	End				
119.33	28°19'	114°53'	3-20	0457	0508	407	0-93	221	221
120.25	28°22.5'	114°15'	3-20	0049	0054	193	0-47	161	161
120.30	28°13'	114°34'	3-20	0258	0307	323	0-79	260	260
120.35	28°03'	114°54'	3-20	0703	0710	216	0-50	74	74
120.40	27°56.5'	115°14'	3-20	0929	0933	154	0-36	65	65
120.45	27°43'	115°33'	3-20	1441	1455	326	0-135	46	46
120.50	27°33'	115°52.5'	3-20	2025	2041	356	0-132	98	98
120.55	27°23.5'	116°12'	3-20	2336	2351	478	0-136	182	182
120.60	27°15'	116°31'	3-21	0201	0216	471	0-135	210	210
120.70	26°57'	117°11'	3-21	0601	0616	466	0-129	62	62
120.80	26°37'	117°55'	3-21	1026	1040	483	0-136	29	29
120.90	26°13'	118°27'	3-21	1556	1611	472	0-136	13	13
123.37	27°24'	114°40'	3-19	0559	0604	208	0-46	530	530
123.42	27°13.5'	114°55.8'	3-19	0305	0321	480	0-136	227	227
123.45	27°07.5'	115°09.5'	3-19	0131	0146	480	0-139	173	173
123.50	26°58.8'	115°30'	3-18	2256	2311	448	0-140	65	65
123.55	26°50'	115°50.5'	3-18	2026	2041	474	0-139	36	36
123.60	26°43.5'	116°06'	3-18	1826	1841	484	0-138	64	64
127.34	26°55'	114°06.5'	3-18	0118	0125	221	0-55	393	393
127.40	26°43.5'	114°29'	3-18	0401	0416	501	0-134	262	262
127.45	26°33'	114°48.5'	3-18	0641	0656	486	0-127	101	101
127.50	26°23'	115°08'	3-18	0846	0901	478	0-134	92	92
127.55	26°13.5'	115°27'	3-18	1116	1130	460	0-136	17	17
127.60	26°03.5'	115°46.5'	3-18	1351	1406	463	0-137	11	11
130.30	26°29'	113°29'	3-17	2029	2035	215	0-50	116	116
130.35	26°19.5'	113°49'	3-17	1806	1821	491	0-136	100	100
130.40	26°10.7'	114°06'	3-17	1506	1521	486	0-141	84	84
130.45	26°00'	114°27'	3-17	1241	1255	403	0-137	82	82
130.50	25°51'	114°45.5'	3-17	1021	1036	503	0-138	30	30
130.55	25°39'	115°04'	3-17	0746	0800	470	0-139	62	62
130.60	25°33'	115°16'	3-17	0541	0556	480	0-142	25	25
133.25	26°04.5'	112°48'	3-16	0644	0651	265	0-69	72	72
133.30	25°54.5'	113°07.5'	3-16	0901	0916	523	0-140	260	260
133.35	25°44.5'	113°26.5'	3-16	1640	1656	522	0-141	215	215
133.40	25°34.5'	113°45.5'	3-16	1901	1916	479	0-136	129	129
133.45	25°24'	114°05'	3-16	2116	2131	458	0-144	269	269
133.50	25°14.5'	114°24'	3-16	2331	2346	464	0-142	106	106
134.36	25°38'	113°25'	3-16	1531	1546	506	0-141	198	198
137.23	25°34'	112°18.8'	3-16	0143	0150	217	0-54	148	148
137.30	25°20'	112°46'	3-15	2221	2236	506	0-142	217	217
137.35	25°10'	113°04.5'	3-15	2001	2016	471	0-144	93	93
137.40	25°05.3'	113°26.3'	3-15	1636	1651	444	0-141	110	110
137.45	24°51'	113°43.5'	3-15	1401	1416	462	0-138	65	65
137.50	24°40'	114°02'	3-15	1126	1141	511	0-141	53	53
Cruise 6004, March 29-April 29, 1960									
40.38	41°47.5'	124°28'	4-24	2051	2104	484	0-118	116	116
40.40	41°47.0'	124°39.5'	4-24	1901	1916	568	0-121	48	48
40.45	41°31.4'	124°53.7'	4-24	1556	1610	550	0-128	238	238
40.50	41°24.0'	125°21.5'	4-24	0926	0940	489	0-136	215	186
40.55	41°03.0'	125°45.5'	4-24	0626	0641	502	0-135	92	92
40.60	41°03.0'	126°10'	4-24	0351	0406	484	0-141	703	649
40.70	40°43.0'	126°55'	4-23	2221	2236	506	0-134	744	744
40.80	40°22.5'	127°40'	4-23	1706	1720	497	0-136	161	161
40.90	40°03.0'	128°25'	4-23	1031	1045	601	0-108	60	60
43.42	41°04.2'	124°20.5'	4-25	0156	0210	542	0-135	249	249
43.45	40°54.8'	124°39.2'	4-25	0506	0520	522	0-135	610	541
43.50	40°46.6'	124°56.6'	4-25	0831	0846	493	0-143	111	111
43.55	40°35.0'	125°20.8'	4-25	1121	1136	567	0-123	532	286

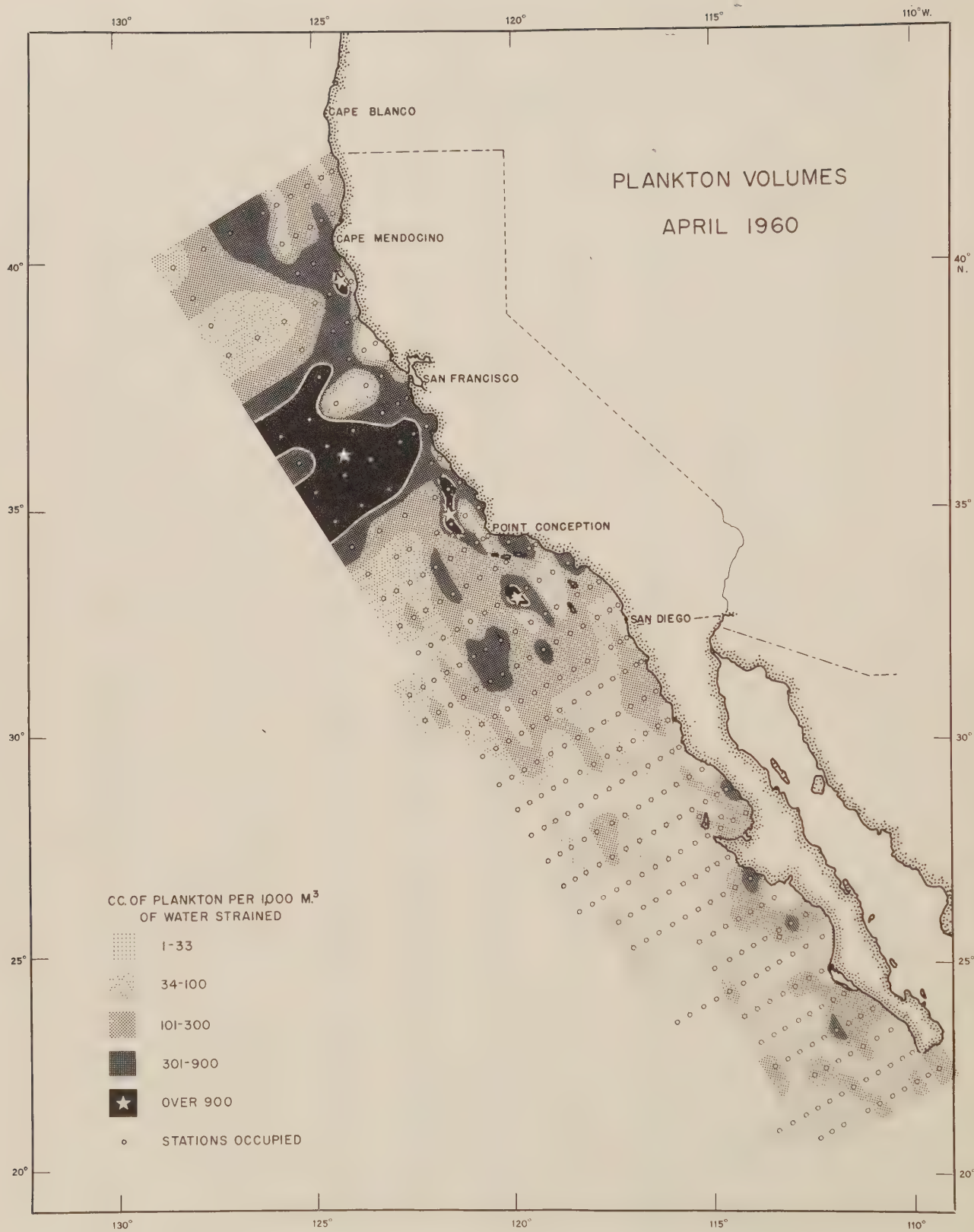


Figure 7.--Plankton volumes, April 1960.

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m. ³	
				Start	End			Total	Small organisms
						m. ³	m.	cc.	cc.
43.60	40°28.5'	125°44'	4-25	1446	1500	571	0-122	51	51
43.90	39°34.0'	128°13'	4-22	2151	2206	544	0-128	118	118
47.55	40°04'	124°55.5'	4-25	2331	2346	464	0-142	399	399
47.60	39°53.5'	125°18'	4-25	2021	2036	572	0-126	365	337
47.90	38°53.5'	127°31.5'	4-22	0911	0926	534	0-133	81	81
50.47	39°46.8'	123°54'	4-20	1518	1526	366	0-74	52	52
50.50	39°40.5'	124°08'	4-20	1731	1746	540	0-128	1486	1486
50.55	39°30.5'	124°32'	4-20	2101	2116	575	0-114	665	665
50.60	39°18.4'	125°01'	4-21	0041	0055	481	0-142	123	110
50.70	38°58.0'	125°51'	4-21	0621	0636	482	0-148	75	75
50.80	38°43.5'	126°27'	4-21	1036	1050	541	0-133	37	37
50.90	38°18.5'	127°04'	4-21	1821	1836	547	0-132	93	93
53.52	39°02.0'	123°51.1'	4-20	0947	0958	380	0-104	227	227
53.55	38°55'	124°03'	4-20	0756	0810	489	0-151	787	787
53.60	38°47.5'	124°23'	4-20	0336	0351	616	0-99	471	406
53.70	38°26.5'	125°11'	4-19	2221	2236	510	0-129	231	118
57.51	38°29.0'	123°25.6'	4-19	0428	0436	414	0-55	24	24
57.55	38°21.0'	123°43.9'	4-19	0706	0721	562	0-128	100	82
57.60	38°10.4'	124°07.6'	4-19	1126	1140	458	0-152	568	568
57.70	37°51.0'	124°48'	4-19	1616	1631	519	0-113	2732	2551
60.52	37°54.0'	123°01.5'	4-18	2058	2105	247	0-62	191	191
60.55	37°53.8'	123°27.4'	4-19	0001	0015	413	0-158	600	506
60.60	37°39.0'	123°31.2'	4-15	1351	1406	551	0-122	100	74
60.70	37°21.3'	124°16.1'	4-15	0836	0850	463	0-153	97	71
60.80	37°00.0'	125°10'	4-15	0241	0255	525	0-132	2900	2632
60.90	36°41.9'	125°49.6'	4-14	2116	2130	509	0-127	1051	947
63.52	37°17.0'	122°40.5'	4-13	1738	1746	263	0-59	856	856
63.55	37°09.0'	122°54'	4-13	1956	2011	522	0-134	536	536
63.60	36°57.0'	123°17'	4-13	2301	2316	523	0-135	967	699
63.70	36°31.5'	124°03.5'	4-14	0426	0440	486	0-145	1705	1570
63.80	36°14.5'	124°37.8'	4-14	0851	0904	526	0-133	2051	1579
63.90	35°58.1'	125°26.1'	4-14	1426	1440	526	0-130	845	578
67.50	36°44.7'	122°06.6'	4-13	1226	1240	516	0-124	985	625
67.55	36°44.5'	122°22.5'	4-13	0915	0930	497	0-130	4245	3593
67.60	36°34.7'	122°43.7'	4-13	0625	0640	464	0-127	8368	7031
67.70	36°12.5'	123°30'	4-13	0001	0014	413	0-145	1729	1535
67.80	35°51.3'	124°16.0'	4-12	1901	1916	524	0-120	1650	1509
67.90	35°26.0'	124°58.0'	4-12	1316	1330	563	0-120	1511	1240
70.52	36°08.2'	121°50.6'	4-11	0715	0729	529	0-111	119	119
70.55	36°02.8'	122°01.5'	4-11	0935	0950	511	0-129	393	393
70.70	35°31.0'	123°08.0'	4-11	1806	1820	498	0-133	1743	1460
70.80	35°15.7'	123°51.7'	4-12	0330	0345	483	0-138	1506	1295
70.90	34°56.4'	124°32.0'	4-12	0815	0830	491	0-132	1816	1604
73.51	35°33.1'	121°26.0'	4-11	0125	0139	507	0-127	487	432
73.55	35°28.2'	121°37.5'	4-10	2141	2156	571	0-141	1143	1045
73.60	35°12.5'	121°54.8'	4-10	1856	1911	514	0-121	210	191
73.70	34°58.5'	122°44.0'	4-10	1321	1335	510	0-127	435	220
73.80	34°34.5'	123°19.0'	4-10	0756	0810	536	0-127	326	144
73.90	34°17.0'	124°02.0'	4-10	0240	0254	435	0-151	545	439
77.51	34°52.9'	121°09.5'	4-8	1651	1705	476	0-123	332	332
77.55	34°48.4'	121°16.0'	4-8	1921	1935	478	0-127	157	90
77.60	34°45.2'	121°31.5'	4-8	2201	2216	391	0-121	1027	1027
77.65	34°36.0'	121°52.2'	4-9	0125	0140	467	0-129	379	281
77.75	34°08.5'	122°39.0'	4-9	1311	1326	541	0-127	39	39
77.80	34°01.5'	122°56.0'	4-9	1556	1610	501	0-130	44	44
77.90	33°41.0'	123°36.0'	4-9	2056	2110	493	0-132	67	67
80.52	34°24.8'	120°35.8'	4-8	0950	1004	503	0-125	167	167
80.53	34°23.0'	120°41.2'	4-8	0850	0904	448	0-134	83	83
80.55	34°11.5'	120°45.5'	4-8	0620	0635	574	0-99	556	486
80.60	34°04.0'	121°08.0'	4-8	0305	0319	517	0-114	257	257

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³	
				Start	End			Total cc.	Small organisms cc.
80.65	33°56.5'	121°29.5'	4-8	0006	0021	445	0-144	171	171
80.70	33°49.0'	121°51.0'	4-7	2141	2156	451	0-137	461	461
80.75	33°42.5'	112°10.0'	4-7	1846	1900	418	0-148	65	65
80.80	33°29.5'	122°30.5'	4-7	1626	1641	516	0-135	54	54
80.85	33°19.0'	122°52.5'	4-7	1331	1346	574	0-103	54	54
80.90	33°07.5'	123°17.7'	4-7	1045	1100	469	0-134	47	47
82.47	34°15.0'	119°57.7'	4-6	0320	0334	568	0-94	336	336
83.40	34°12.8'	119°21.8'	4-5	2220	2222	83	0-10	253	253
83.43	34°07.8'	119°35.6'	4-6	0010	0024	574	0-103	441	441
83.51	33°52.0'	120°07.0'	4-6	0830	0845	492	0-126	159	159
83.55	33°43.5'	120°26.8'	4-6	1100	1114	443	0-132	102	102
83.60	33°33.5'	120°45.5'	4-6	1341	1356	568	0-97	195	195
83.65	33°24.3'	121°04.2'	4-6	1556	1610	516	0-108	316	227
83.70	33°08.5'	121°27.5'	4-6	1911	1926	490	0-122	321	321
83.75	33°01.3'	121°45.0'	4-6	2121	2136	478	0-127	364	170
83.80	32°52.2'	122°06.0'	4-7	0011	0026	490	0-134	90	73
83.85	32°43.0'	122°25.5'	4-7	0225	0240	556	0-110	106	106
83.90	32°34.5'	122°46.0'	4-7	0540	0555	481	0-132	164	73
87.35	33°50.0'	118°37.0'	4-5	1711	1725	458	0-136	467	467
87.40	33°40.0'	118°58.7'	4-5	1226	1240	507	0-131	73	73
87.45	33°30.1'	119°19.0'	4-5	1045	1100	456	0-146	96	96
87.50	33°20.1'	119°39.5'	4-5	0808	0814	215	0-50	443	443
87.55	33°02.2'	120°03.4'	4-5	0420	0435	392	0-122	1339	931
87.60	32°53.0'	120°21.5'	4-5	0045	0100	424	0-151	106	106
87.65	32°44.5'	120°42.0'	4-4	2126	2140	430	0-149	175	175
87.70	32°35'	121°03.0'	4-4	1731	1746	476	0-132	78	78
87.75	32°27.5'	121°20.0'	4-4	1451	1506	480	0-132	123	123
87.80	32°18.5'	121°41.0'	4-4	1236	1250	465	0-143	37	37
87.85	32°11.0'	121°58.5'	4-4	0950	1004	514	0-127	84	84
87.90	31°58.0'	122°28.0'	4-4	0655	0709	546	0-113	33	33
90.28	33°29'	117°47.0'	4-1	2051	2105	436	0-117	112	112
90.32	33°20.5'	118°03.0'	4-1	2335	2351	577	0-151	139	139
90.37	33°10.6'	118°23.5'	4-2	0310	0324	432	0-154	132	132
90.45	32°55'	118°57.0'	4-2	0730	0744	585	0-110	36	36
90.50	32°46.7'	119°18.0'	4-2	1035	1050	423	0-146	470	470
90.55	32°34.4'	119°37.5'	4-2	1401	1416	469	0-130	92	92
90.60	32°23.5'	120°00.0'	4-2	1716	1730	445	0-152	272	234
90.65	32°14.0'	120°20.6'	4-2	1941	1956	506	0-131	699	699
90.70	32°03.2'	120°40.2'	4-2	2301	2316	449	0-141	463	463
90.75	31°52.5'	121°01.0'	4-3	0120	0134	498	0-135	319	319
90.80	31°41.5'	121°21.5'	4-3	0555	0610	657	0-85	312	41
90.85	31°33'	121°40.0'	4-3	0750	0804	478	0-129	102	102
90.90	31°21.5'	122°04.0'	4-3	1055	1110	443	0-148	29	29
90.95	31°11.1'	122°20.5'	4-3	1336	1351	522	0-123	40	40
90.100	31°05.0'	122°40.0'	4-3	1811	1825	482	0-126	66	66
93.28	32°54.7'	117°21.9'	3-29	1456	1510	496	0-132	46	46
93.30	32°50'	117°31.5'	3-29	1711	1726	482	0-133	66	66
93.35	32°40'	117°55.4'	3-29	1956	2011	501	0-141	98	98
93.40	32°30'	118°18.3'	3-29	2311	2326	482	0-137	112	112
93.45	32°24'	118°32.6'	3-30	0146	0200	463	0-152	270	270
93.50	32°16.3'	118°50.9'	3-30	0546	0600	446	0-147	242	242
93.55	32°03.3'	119°14'	3-30	0841	0856	447	0-145	510	396
93.60	31°53.3'	119°12'	3-30	1121	1136	461	0-134	1048	178
93.65	31°38.5'	119°51.6'	3-30	1556	1610	455	0-136	261	261
93.70	31°34'	120°12.3'	3-30	1926	1940	472	0-133	565	565
93.75	31°22.3'	120°36.3'	3-30	2246	2301	465	0-131	533	533
93.80	31°12.6'	120°56.2'	3-31	0225	0241	457	0-164	300	256
93.85	31°02.8'	121°14.8'	3-31	0431	0445	453	0-138	296	296
93.90	30°52.8'	121°35.5'	3-31	0801	0816	467	0-146	77	64
93.95	30°40.6'	121°55.3'	3-31	1116	1131	456	0-151	105	105

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m. ³	
				Start	End			Total	Small organisms
						m. ³	m.	cc.	cc.
93.100	30°32'	122°15.5'	3-31	1426	1441	512	0-135	49	49
97.30	32°15.4'	117°08.9'	4-2	1709	1714	150	0-31	60	60
97.32	32°11.7'	117°16.5'	4-2	1916	1931	547	0-112	205	205
97.35	32°05.5'	117°27.5'	4-2	0836	0851	460	0-134	54	54
97.45	31°45.8'	118°07.5'	4-2	0351	0406	475	0-134	126	126
97.50	31°35'	118°30'	4-2	0111	0126	(489)	0-131	(192)	(192)
97.55	31°35.5'	118°52'	4-1	2141	2156	458	0-144	122	122
97.60	31°28'	119°21'	4-1	1756	1810	448	0-134	116	116
97.65	31°14'	119°35.5'	4-1	1441	1455	456	0-144	178	178
97.70	30°57.5'	119°51.5'	4-1	1141	1156	450	0-133	196	196
97.75	30°47'	120°10'	4-1	0756	0811	464	0-140	116	82
97.80	30°35'	120°34'	4-1	0431	0446	472	0-143	119	119
97.85	30°25.5'	120°50.8'	4-1	0041	0056	474	0-139	72	72
97.90	30°15.5'	121°10.5'	3-31	2156	2211	511	0-137	96	96
100.29	31°42.2'	116°43.4'	4-2-3	2351	0005	551	0-102	196	127
100.30	31°40.7'	116°46.7'	4-3	0101	0116	478	0-119	180	180
100.35	31°32.2'	117°07'	4-3	0331	0346	489	0-134	215	215
100.40	31°25.3'	117°28.2'	4-3	0641	0656	519	0-114	50	50
100.45	31°08.2'	117°46'	4-3	0921	0936	488	0-127	55	55
100.50	31°05'	118°12'	4-3	1226	1240	501	0-126	62	62
100.55	30°50.5'	118°27'	4-3	1451	1506	491	0-132	106	77
100.60	30°42'	118°48'	4-3	1811	1826	528	0-114	55	44
100.65	30°32.8'	119°08.5'	4-3	2031	2046	467	0-141	131	118
100.70	30°24'	119°29.2'	4-3-4	2351	0006	502	0-113	273	249
100.75	30°15'	119°50'	4-4	0226	0240	458	0-147	41	41
100.80	30°07'	120°10'	4-4	0536	0550	528	0-116	133	114
100.85	29°50'	120°27'	4-4	0826	0841	487	0-129	82	41
100.90	29°42'	120°45.5'	4-4	1126	1140	512	0-120	33	33
103.30	31°06'	116°24.5'	4-6	0254	0258	165	0-24	152	152
103.35	30°56'	116°45'	4-5	2341	2355	503	0-127	115	115
103.35	30°56'	116°45'	4-6	2306	2321	467	0-135	208	178
103.40	30°46'	117°04.5'	4-5	2021	2036	478	0-135	186	119
103.45	30°36'	117°24'	4-5	1716	1730	514	0-125	97	97
103.50	30°26'	117°44.5'	4-5	1441	1456	536	0-115	65	65
103.55	30°17.4'	118°01.3'	4-5	1201	1216	542	0-118	50	50
103.60	30°07.1'	118°22'	4-5	0931	0946	500	0-126	224	188
103.65	29°56.8'	118°41.9'	4-5	0636	0650	538	0-93	13	13
103.70	29°47.5'	119°00.9'	4-5	0416	0430	530	0-116	70	70
103.75	29°37.1'	119°21.3'	4-5	0041	0056	507	0-130	237	195
103.80	29°26.5'	119°42'	4-4	2216	2231	432	0-130	155	155
103.85	29°15.9'	120°04.2'	4-4	1906	1920	502	0-130	20	20
103.90	29°06'	120°23.1'	4-4	1636	1651	521	0-125	21	21
107.32	30°25.8'	116°11.1'	4-6	0756	0811	438	0-128	98	84
107.35	30°22.3'	116°21.3'	4-6	1011	1026	477	0-125	134	109
107.40	30°11'	116°42'	4-6	1401	1416	510	0-126	47	47
107.45	30°01.5'	117°02'	4-6	1631	1646	514	0-109	105	31
107.50	29°48.1'	117°22.3'	4-11	0356	0410	506	0-135	45	45
107.55	29°37.5'	117°43.3'	4-11	0626	0641	511	0-148	41	41
107.60	29°27.1'	118°05.4'	4-11	0936	0951	497	0-142	189	189
107.65	29°27'	118°20.8'	4-11	1131	1146	532	0-126	23	23
107.70	29°11.5'	118°40'	4-11	2241	2256	533	0-124	26	26
107.75	29°02'	119°00'	4-12	0121	0136	495	0-140	51	26
107.80	29°01'	119°19'	4-12	0631	0646	516	0-143	6	6
107.85	28°54'	119°43.2'	4-12	1016	1031	549	0-131	11	11
107.90	28°33.2'	119°59'	4-12	1426	1440	490	0-139	8	8
110.33	29°48.8'	115°52.2'	4-14	1023	1031	347	0-53	75	75
110.35	29°45.1'	116°01.2'	4-14	0901	0916	556	0-126	54	54
110.40	29°31.3'	116°24.8'	4-14	0531	0546	548	0-141	33	33
110.45	29°22.8'	116°43'	4-14	0216	0230	487	0-123	82	39
110.50	29°14.1'	117°02'	4-13	2341	2355	617	0-122	50	50

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m. ³	
								Total	Small organisms
				Start	End	m. ³	m.	cc.	cc.
110.55	29°06'	117°20.8'	4-13	2026	2041	495	0-125	67	28
110.60	28°56.3'	117°43'	4-13	1746	1800	580	0-150	36	14
110.65	28°48'	118°00'	4-13	1351	1405	505	0-135	10	10
110.70	28°39'	118°18'	4-13	1121	1136	487	0-128	21	21
110.75	28°18'	118°39.2'	4-13	0726	0741	520	0-137	17	17
110.80	28°23.7'	119°05.3'	4-13	0411	0425	438	0-134	34	34
110.85	28°10.3'	119°20.3'	4-12	2336	2350	507	0-146	26	26
110.90	27°56.6'	119°35.3'	4-12	1946	2001	515	0-130	27	27
113.30	29°22'	115°18'	4-14	1443	1450	209	0-48	19	19
113.35	29°12'	115°37.2'	4-14	1751	1806	560	0-124	186	186
113.40	29°02'	115°57'	4-14	2116	2131	478	0-141	54	54
113.45	28°52'	116°18'	4-14-15	2346	0001	502	0-131	12	12
113.50	28°41.5'	116°36.5'	4-15	0331	0346	522	0-134	33	33
113.55	28°32'	116°57'	4-15	0621	0636	491	0-148	18	18
113.60	28°21.4'	117°17.3'	4-15	0941	0956	508	0-142	61	61
113.65	28°11.5'	117°35.2'	4-15	1211	1226	532	0-139	115	115
113.70	28°13.8'	118°02'	4-15	1631	1646	480	0-150	146	146
113.75	28°16'	118°23.8'	4-15	1941	1956	658	0-132	18	18
113.80	27°30.2'	118°27.2'	4-15-16	2356	0011	500	0-153	40	40
113.85	27°34.5'	118°45'	4-16	0321	0336	505	0-156	24	24
113.90	27°41.2'	119°06'	4-16	0706	0720	503	0-145	20	20
117.26	28°56.7'	114°42.2'	4-18	0349	0354	217	0-28	308	308
117.30	28°48'	114°56.4'	4-18	0043	0050	329	0-51	137	137
117.35	28°37.8'	115°10.9'	4-17	2201	2216	580	0-106	84	84
117.40	28°27.7'	115°35.5'	4-17	1701	1715	566	0-121	65	65
117.45	28°17'	115°56.7'	4-17	1356	1411	583	0-108	43	29
117.50	28°08.7'	116°13.7'	4-17	1131	1146	540	0-126	35	35
117.55	27°57.5'	116°34.5'	4-17	0806	0821	599	0-118	17	17
117.60	27°50.8'	116°55.1'	4-17	0531	0546	494	0-148	69	69
117.65	27°39.8'	117°14'	4-17	0216	0230	572	0-113	59	59
117.70	27°29.1'	117°32.7'	4-16	2336	2350	548	0-121	188	188
117.75	27°18.0'	117°51.4'	4-16	2021	2036	616	0-108	45	45
117.80	27°08.1'	118°10.4'	4-16	1751	1806	510	0-136	35	35
117.85	26°57'	118°29'	4-16	1446	1501	567	0-118	9	9
117.90	27°06.7'	118°42.2'	4-16	1216	1230	513	0-140	12	12
118.39	28°18.6'	115°23.7'	4-17	1911	1926	512	0-121	283	283
119.33	28°20.2'	114°54.4'	4-18	1553	1600	278	0-69	93	93
120.25	28°22.5'	114°15'	4-18	0809	0813	245	0-20	188	188
120.30	28°17.2'	114°31.2'	4-18	1038	1046	379	0-46	124	124
120.35	28°04.2'	114°52.2'	4-18	1338	1345	338	0-50	263	263
120.40	27°56'	115°14'	4-16	1254	1258	171	0-33	88	88
120.45	28°04'	115°54'	4-16	0741	0756	627	0-110	18	18
120.50	27°51'	116°11'	4-16	0431	0446	503	0-150	30	30
120.55	27°39'	116°27'	4-16	0156	0211	507	0-141	39	39
120.60	27°26'	116°44'	4-15	2241	2256	493	0-142	36	36
120.65	27°13'	117°00'	4-15	2011	2026	530	0-134	57	57
120.70	27°00'	117°17'	4-15	1751	1806	504	0-152	20	20
120.75	26°47'	117°34'	4-15	1356	1411	494	0-141	12	12
120.80	26°35'	117°50'	4-15	1031	1046	517	0-137	14	14
120.85	26°33'	118°08'	4-15	0736	0751	529	0-143	11	11
120.90	26°17'	118°25'	4-15	0336	0351	492	0-140	18	18
123.37	27°24'	114°40'	4-16	1828	1835	330	0-57	45	45
123.42	27°14'	114°58.5'	4-16	2041	2056	522	0-133	94	94
123.45	27°08'	115°11.5'	4-16	2316	2330	522	0-140	52	52
123.50	26°59.5'	115°28.5'	4-17	0126	0140	575	0-137	50	50
123.55	26°51'	115°46'	4-17	0431	0445	512	0-138	8	8
123.60	26°42'	116°02'	4-17	0646	0701	505	0-143	14	14
123.65	26°30'	116°26'	4-17	1011	1026	552	0-131	42	42
123.70	26°22'	116°42.5'	4-17	1251	1306	563	0-135	16	16
123.75	26°09'	117°06.5'	4-17	1641	1656	565	0-136	4	4

Table 5. --Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m. ³	
								Total	Small organisms
				Start	End	m. ³	m.	cc.	cc.
123.80	25°59'	117°26'	4-17	1946	2000	506	0-140	34	34
127.34	26°55'	114°06.5'	4-19	0353	0401	326	0-61	620	620
127.40	26°43.5'	114°29'	4-19	0041	0056	567	0-141	120	109
127.45	26°33'	114°48.5'	4-18	2156	2211	491	0-143	181	35
127.50	26°22.5'	115°06.5'	4-18	1841	1856	506	0-141	55	55
127.55	26°13'	115°23'	4-18	1611	1626	521	0-144	27	27
127.60	26°03.5'	115°46.5'	4-18	1311	1326	523	0-141	15	15
127.65	25°52'	116°06'	4-18	1036	1051	503	0-142	6	6
127.70	25°43'	116°28'	4-18	0706	0721	485	0-144	12	12
127.75	25°42'	116°46'	4-18	0416	0431	523	0-140	29	29
127.80	25°26'	117°04'	4-18	0056	0111	538	0-139	39	39
130.30	26°29'	113°29'	4-19	0818	0826	282	0-68	7	7
130.35	26°19.5'	113°50.5'	4-19	1021	1036	495	0-140	156	156
130.40	26°08.5'	114°08'	4-19	1256	1311	520	0-138	292	292
130.45	26°00'	114°26.5'	4-19	1556	1611	490	0-139	157	157
130.50	25°50'	114°44'	4-19	1806	1821	520	0-124	75	75
130.55	25°39'	115°04'	4-19	2056	2111	472	0-139	40	40
130.60	25°29'	115°24'	4-19	2321	2336	500	0-142	50	50
133.25	26°04.5'	112°48'	4-21	0203	0210	248	0-62	137	137
133.30	25°55'	113°16.5'	4-20	2236	2251	482	0-139	612	612
133.35	25°46'	113°27'	4-20	2006	2021	506	0-135	168	168
133.40	25°34.5'	113°45.5'	4-20	1536	1551	495	0-142	61	61
133.45	25°24'	114°05'	4-20	1306	1321	504	0-142	34	34
133.50	25°18'	114°25'	4-20	1006	1021	506	0-141	28	28
133.55	25°07'	114°42'	4-20	0746	0801	491	0-142	39	39
133.60	24°54.5'	115°02'	4-20	0421	0436	490	0-140	43	43
134.36	25°38'	113°25'	4-20	1902	1915	408	0-115	294	294
137.23	25°34'	112°19'	4-21	0618	0625	254	0-61	75	75
137.30	25°20'	112°46'	4-21	0926	0941	469	0-138	45	45
137.35	25°10.5'	113°03.5'	4-21	1156	1211	514	0-124	25	25
137.40	25°00'	113°23.5'	4-21	1506	1520	528	0-138	21	21
137.45	24°48.5'	113°44.5'	4-21	1816	1830	529	0-140	81	81
137.50	24°40'	114°00'	4-21	2031	2046	526	0-140	63	63
137.55	24°30'	114°18'	4-21	2316	2331	515	0-141	60	60
137.60	24°20'	114°36'	4-22	0136	0151	549	0-140	117	117
137.65	24°10'	114°59'	4-22	0421	0436	520	0-140	27	27
137.70	24°00'	115°11.5'	4-22	0641	0656	564	0-140	9	9
137.75	23°48'	115°37'	4-22	1016	1031	534	0-140	9	9
137.80	23°40'	115°55'	4-22	1201	1215	484	0-140	17	17
140.30	24°45.5'	112°24'	4-23	2055	2106	368	0-100	68	68
140.35	24°35.5'	112°42.5'	4-23	1746	1801	518	0-142	124	124
140.40	24°24'	113°04'	4-23	1401	1416	495	0-145	194	194
140.45	24°14'	113°21'	4-23	1111	1126	475	0-142	53	53
140.50	24°04.5'	113°40'	4-23	0816	1831	479	0-146	88	88
140.55	23°58'	113°53'	4-23	0636	0651	522	0-141	46	46
140.60	23°45.5'	114°16.5'	4-22	2201	2215	537	0-140	89	89
143.26	24°19'	111°48'	4-25	0258	0305	273	0-68	235	235
143.30	24°11'	112°03'	4-25	0611	0626	471	0-144	212	212
143.35	24°01.5'	112°23'	4-25	0856	0911	470	0-142	47	47
143.40	23°50.5'	112°41'	4-25	1211	1225	485	0-146	17	17
143.45	23°41.5'	112°58'	4-25	1506	1520	496	0-144	16	16
143.50	23°28'	113°22'	4-25	1801	1816	543	0-140	63	63
143.55	23°21'	113°36.5'	4-25	2046	2101	513	0-142	70	70
143.60	23°10.5'	113°55.5'	4-25	2316	2331	520	0-141	98	98
147.20	23°56'	111°03.5'	4-27	0331	0345	502	0-134	108	108
147.25	23°46'	111°22'	4-27	0056	0110	503	0-144	233	233
147.30	23°35.5'	111°41.5'	4-26	2156	2211	500	0-143	282	282
147.35	23°25'	112°00'	4-26	1911	1926	485	0-142	375	375
147.40	23°16'	112°19'	4-26	1616	1631	491	0-142	81	81
147.45	23°05.5'	112°37.5'	4-26	1341	1356	510	0-144	35	35

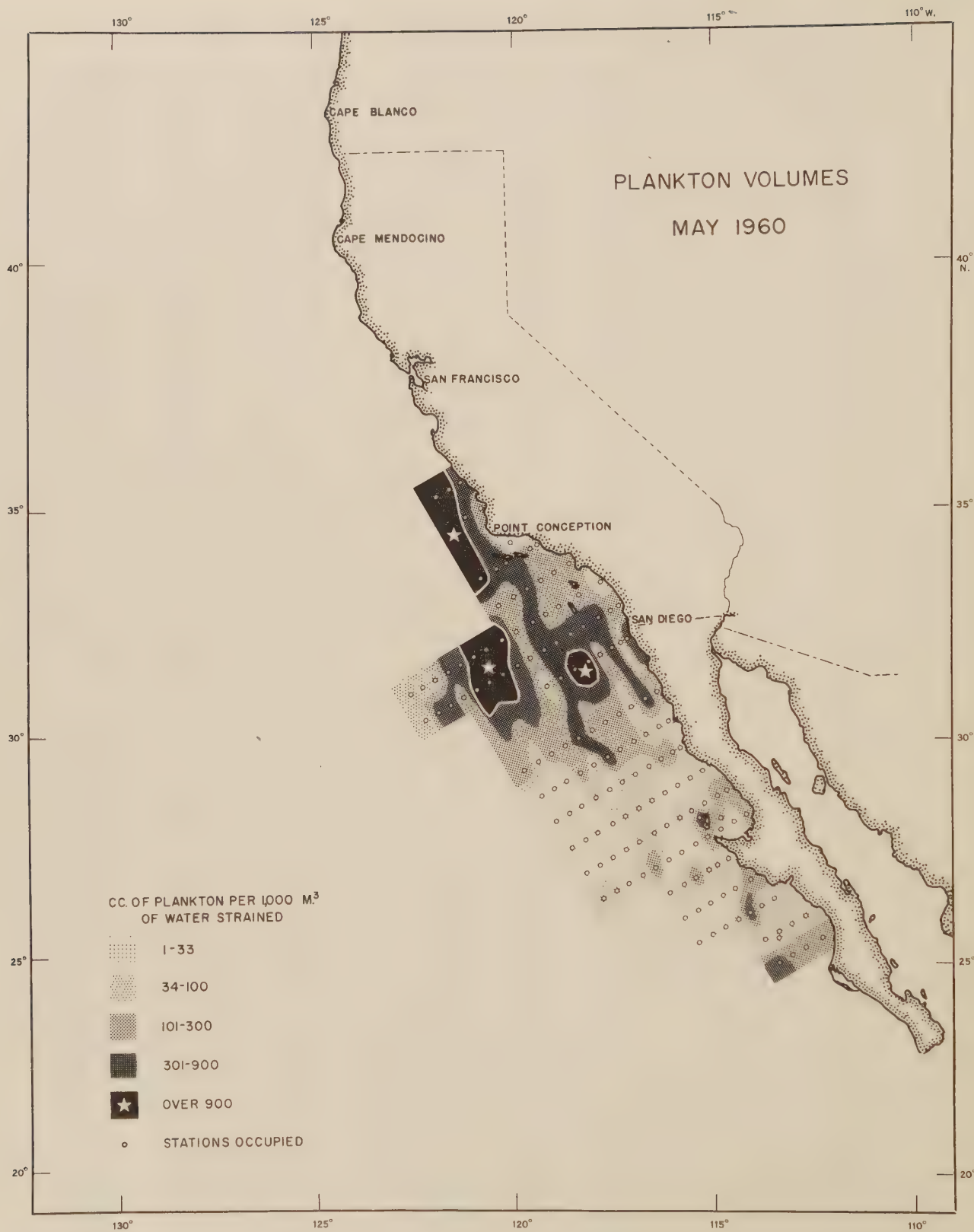


Figure 8.--Plankton volumes, May 1960.

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m^3	Depth of haul m.	Vol. per 1,000 m^3	
								Total	Small organisms
				Start	End				
								cc.	cc.
147.50	22°55.5'	112°56.5'	4-26	1036	1050	496	0-141	59	59
147.55	22°49'	113°16'	4-26	0746	0801	492	0-142	43	43
147.60	22°39'	113°36'	4-26	0416	0431	498	0-141	110	110
150.19	23°24'	110°40.3'	4-27	0751	0806	498	0-139	34	34
150.25	23°13.3'	110°59.5'	4-27	1031	1046	495	0-142	63	63
150.30	23°02'	111°20'	4-27	1401	1416	521	0-142	209	209
150.35	22°51.5'	111°38.5'	4-27	1726	1741	501	0-141	78	78
150.40	22°41.5'	111°57'	4-27	2016	2031	499	0-137	38	38
150.45	22°31.5'	112°16'	4-27	2331	2346	460	0-143	122	122
150.50	22°21.5'	112°34'	4-28	0206	0221	474	0-143	164	164
153.16	22°57.3'	110°09'	4-29	2001	2015	500	0-139	98	98
153.20	22°47'	110°22'	4-29	1726	1740	485	0-142	43	43
153.25	22°43'	110°43.5'	4-29	1401	1415	474	0-146	72	72
153.30	22°34.5'	111°03'	4-29	1136	1151	517	0-146	52	52
153.35	22°28'	111°17'	4-29	0841	0856	480	0-138	87	87
153.40	22°14.5'	111°38'	4-29	0451	0506	484	0-148	120	120
153.45	22°02.5'	111°56'	4-29	0201	0216	496	0-142	65	65
153.50	21°49.8'	112°14'	4-28	2241	2256	473	0-142	76	76
153.55	21°38'	112°32'	4-28	2006	2021	521	0-138	98	98
153.60	21°27'	112°49'	4-28	1716	1730	494	0-142	85	85
153.65	21°17'	113°09'	4-28	1436	1450	499	0-144	78	78
153.70	21°06'	113°27'	4-28	1141	1156	517	0-142	60	60
Cruise 6005, May 15-28, 1960									
73.51	35°34.5'	121°20.3'	5-15	1211	1226	496	0-130	811	811
73.55	35°28'	121°34'	5-15	1001	1016	502	0-138	1089	909
73.60	35°18.3'	121°50.1'	5-15	0726	0740	466	0-147	1462	1335
77.50	35°04.1'	120°52'	5-15	1637	1648	469	0-74	147	147
77.55	34°53.4'	121°12.2'	5-16	1021	1036	468	0-143	490	408
82.47	34°13.3'	120°02.4'	5-18	0956	1011	500	0-139	30	30
83.40	34°13.9'	119°21.5'	5-18	1530	1532	126	0-13	63	63
83.43	34°08.5'	119°34.1'	5-18	1341	1356	467	0-137	105	105
83.51	33°51.8'	120°07.5'	5-18	2133	2140	342	0-44	348	348
83.55	33°42.9'	120°23.5'	5-19	2131	2146	506	0-128	354	354
83.60	33°33.3'	120°41'	5-19	1756	1810	450	0-139	1790	1223
87.35	33°49.4'	118°37.1'	5-20	1026	1040	470	0-140	109	109
87.40	33°40'	118°58.6'	5-20	0801	0815	478	0-138	216	216
87.45	33°30.7'	119°18'	5-20	0446	0500	493	0-128	209	209
87.50	33°19.5'	119°39.5'	5-20	0159	0206	260	0-66	689	689
87.55	33°09.4'	119°57.6'	5-19	0821	0835	659	0-75	147	147
87.60	33°01'	120°19'	5-19	1206	1221	461	0-145	176	176
90.28	33°28.8'	117°48'	5-21	0916	0931	481	0-140	85	85
90.37	33°10.6'	118°23.3'	5-22	0316	0331	465	0-141	148	131
90.45	32°55.2'	118°56.3'	5-22	0816	0831	458	0-143	677	155
90.50	32°44.5'	119°16.2'	5-22	1108	1116	259	0-64	274	274
90.55	32°34.9'	119°34.6'	5-22	1416	1430	496	0-122	371	371
90.60	32°21.9'	119°54.1'	5-22	1836	1851	487	0-134	282	282
90.65	32°12.1'	120°16.3'	5-22	2116	2131	465	0-139	1262	1158
90.70	32°02.9'	120°37.2'	5-23	0051	0106	456	0-144	3994	3858
90.75	31°53'	120°56.2'	5-23	0336	0351	439	0-144	1028	1028
90.80	31°43.6'	121°14.7'	5-23	0736	0751	447	0-142	1126	871
90.85	31°32.9'	121°37.4'	5-23	1026	1041	456	0-142	628	628
90.90	31°23.1'	121°57.7'	5-23	1426	1441	481	0-134	94	94
90.95	31°12.5'	122°16.2'	5-23	1706	1720	385	0-138	75	75
90.100	31°01'	122°35.4'	5-23	2031	2045	467	0-141	45	45
93.28	32°53.1'	117°22.5'	5-26	0036	0050	479	0-137	167	167
93.30	32°49'	117°30.7'	5-25	2231	2246	478	0-140	128	128
93.35	32°39.3'	117°50.2'	5-25	1836	1850	394	0-141	535	535
93.40	32°29.8'	118°09'	5-25	1536	1550	488	0-137	502	502

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³	
								Total cc.	Small organisms cc.
				Start	End				
93.45	32°18.1'	118°32.1'	5-25	1156	1210	469	0-142	603	582
93.50	32°08'	118°52.9'	5-25	0916	0930	422	0-142	410	386
93.55	31°56'	119°17.3'	5-25	0451	0506	435	0-142	573	573
93.60	31°46.6'	119°35.7'	5-25	0206	0220	453	0-143	358	296
93.65	31°37.9'	119°54'	5-24	2211	2226	469	0-140	395	395
93.70	31°28'	120°15'	5-24	1916	1930	453	0-139	2314	2052
93.75	31°20.4'	120°34.2'	5-24	1556	1610	476	0-138	2234	2234
93.80	31°12.1'	120°59.4'	5-24	1251	1306	477	0-140	1376	1376
93.85	31°01.7'	121°20.5'	5-24	0856	0910	482	0-137	143	127
93.90	30°54.2'	121°39'	5-24	0631	0646	488	0-141	850	850
93.95	30°44'	121°57.8'	5-24	0311	0326	473	0-143	408	408
93.100	30°35.1'	122°14'	5-24	0046	0100	474	0-142	99	99
97.30	32°15.1'	117°08.5'	5-26	0644	0648	158	0-39	602	602
97.32	32°11.8'	117°16'	5-26	0831	0846	458	0-141	42	42
97.35	32°06.7'	117°28.1'	5-26	1021	1036	468	0-139	327	327
97.40	31°56.1'	117°50.2'	5-26	1316	1330	459	0-143	216	216
97.45	31°46'	118°08.7'	5-26	1556	1610	446	0-141	1613	1613
97.50	31°37.5'	118°23.9'	5-26	1841	1856	464	0-137	1070	999
97.55	31°23'	118°49.5'	5-26	2226	2240	472	0-141	606	606
97.60	31°12.7'	119°09.5'	5-27	0251	0306	379	0-140	76	76
103.30	31°06'	116°24.5'	5-28	1933	1939	224	0-56	139	139
103.35	30°56'	116°45'	5-28	1711	1725	465	0-141	858	858
103.40	30°48.4'	117°04.5'	5-28	1426	1440	500	0-138	74	74
103.45	30°41'	117°20'	5-28	1226	1240	481	0-140	156	156
103.50	30°32.5'	117°43.5'	5-28	0846	0900	497	0-139	103	103
103.55	30°21'	118°05'	5-28	0546	0601	493	0-138	172	172
103.60	30°11'	118°25'	5-28	0226	0241	508	0-137	551	551
103.65	29°59'	118°44'	5-27	2341	2355	491	0-139	173	173
103.70	29°49'	119°05'	5-27	2046	2100	499	0-142	186	186
103.75	29°36.5'	119°26.5'	5-27	1746	1801	489	0-135	35	35
103.80	29°27'	119°42'	5-27	1521	1536	502	0-137	151	151
107.32	30°25.8'	116°11'	5-26	0702	0716	530	0-127	217	58
107.35	30°20'	116°22.5'	5-26	0831	0846	507	0-137	65	65
107.40	30°12.5'	116°42.3'	5-26	1056	1111	500	0-140	94	94
107.45	30°00.8'	117°02.5'	5-26	1331	1345	459	0-139	218	218
107.50	29°50.5'	117°22'	5-26	1616	1630	498	0-139	138	138
107.55	29°41'	117°42'	5-26	1901	1915	497	0-141	444	444
107.60	29°29'	118°00'	5-26	2141	2156	476	0-142	63	63
107.65	29°21'	118°21'	5-27	0041	0056	486	0-138	179	179
107.70	29°11'	118°41'	5-27	0326	0341	527	0-136	30	30
107.75	29°01.5'	119°01'	5-27	0646	0700	484	0-141	21	21
107.80	28°51.5'	119°20.5'	5-27	0921	0935	492	0-142	14	14
110.33	29°50'	115°52'	5-26	0138	0146	257	0-70	66	66
110.35	29°46'	116°00'	5-26	0016	0030	487	0-138	103	103
110.40	29°39'	116°17'	5-25	2211	2226	493	0-141	278	278
110.45	29°29'	116°40'	5-25	1926	1941	450	0-140	82	82
110.50	29°20'	117°01'	5-25	1636	1650	474	0-145	74	74
110.55	29°09'	117°21'	5-25	1356	1410	511	0-140	53	53
110.60	28°56.5'	117°38'	5-25	1031	1046	508	0-142	33	33
110.65	28°46'	117°59'	5-25	0106	0120	514	0-138	49	49
110.70	28°36.5'	118°18'	5-24	2141	2155	514	0-141	33	33
110.75	28°26'	118°37'	5-24	1842	1856	504	0-141	32	32
110.80	28°16.5'	118°57.5'	5-24	1616	1630	514	0-142	16	16
113.30	29°22'	115°18'	5-23	0839	0843	158	0-33	44	44
113.35	29°12'	115°39'	5-23	1051	1106	508	0-139	4	4
113.40	29°03'	115°57.5'	5-23	1331	1345	491	0-141	18	18
113.45	28°53'	116°19'	5-23	1636	1650	466	0-143	32	32
113.50	28°40'	116°40'	5-23	1926	1941	459	0-134	70	70
113.55	28°33'	117°01'	5-23	2236	2251	483	0-144	75	75
113.60	28°20'	117°22'	5-24	0111	0126	528	0-137	49	49

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³	
								Total cc.	Small organisms cc.
				Start	End				
113.65	28°08'	117°42'	5-24	0445	0460	490	0-136	20	20
113.70	28°02'	117°55'	5-24	0631	0645	502	0-136	14	14
113.75	27°52.5'	118°14'	5-24	0851	0905	484	0-141	14	14
113.80	27°42'	118°33.5'	5-24	1111	1125	408	0-140	17	17
117.26	28°56'	114°41.5'	5-23	0338	0345	259	0-70	127	127
117.30	28°48'	114°56.5'	5-23	0138	0147	291	0-83	124	124
117.35	28°38'	115°16'	5-22	2255	2311	482	0-139	89	89
117.40	28°28'	115°35.5'	5-22	1301	1316	493	0-143	59	59
117.45	28°18'	115°56'	5-22	1041	1056	504	0-140	65	65
117.50	28°15'	116°17'	5-22	0446	0500	456	0-145	20	20
117.55	28°03'	116°37'	5-22	0141	0156	493	0-137	51	51
117.60	27°51'	116°56'	5-21	2236	2250	477	0-143	44	44
117.65	27°39'	117°14.5'	5-21	1946	2001	489	0-142	22	22
117.70	27°28'	117°32.5'	5-21	1646	1701	482	0-146	10	10
117.75	27°17.5'	117°52'	5-21	1346	1401	468	0-143	23	23
117.80	27°08'	118°10.5'	5-21	1021	1035	497	0-140	14	14
118.39	28°18.5'	115°23.7'	5-22	2001	2015	502	0-139	404	404
119.33	28°19'	114°53'	5-19	2233	2241	296	0-75	132	132
120.25	28°22.5'	114°15'	5-20	0219	0224	187	0-38	193	193
120.30	28°13'	114°34'	5-20	0448	0456	259	0-64	23	23
120.35	28°03'	114°54'	5-20	0648	0656	276	0-67	83	83
120.40	27°56.5'	115°14'	5-20	0859	0902	131	0-28	206	206
120.45	27°43'	115°33'	5-20	1116	1131	493	0-138	14	14
120.50	27°33'	115°52.5'	5-20	1341	1356	515	0-135	10	10
120.55	27°23'	116°12'	5-20	1646	1700	490	0-137	22	22
120.60	27°13'	116°30.5'	5-20	1911	1926	502	0-139	153	153
120.65	27°03'	116°50.5'	5-20	2136	2151	464	0-141	73	73
120.70	26°53'	117°10'	5-20-21	2356	0011	485	0-137	29	29
120.75	26°42.5'	117°30'	5-21	0231	0246	511	0-136	41	41
120.80	26°32.5'	117°49'	5-21	0456	0511	500	0-138	38	38
123.37	27°24'	114°40'	5-19	1103	1110	224	0-53	53	53
123.42	27°15'	114°58'	5-19	0531	0545	477	0-144	44	44
123.45	27°12'	115°08.5'	5-19	0356	0410	479	0-138	83	83
123.50	27°01'	115°28.5'	5-19	0116	0130	484	0-140	159	159
123.55	26°49'	115°49'	5-18	2241	2255	518	0-141	58	58
123.60	26°38.5'	116°09'	5-18	2001	2016	506	0-141	30	30
127.34	26°55'	114°06.5'	5-18	0213	0219	264	0-49	125	125
127.40	26°43.5'	114°29'	5-18	0451	0505	548	0-114	40	40
127.45	26°33'	114°48.5'	5-18	0721	0735	518	0-137	14	14
127.50	26°22'	115°07'	5-18	0951	1006	522	0-138	23	23
127.55	26°13.5'	115°27'	5-18	1206	1220	514	0-139	8	8
127.60	26°03.5'	115°46.5'	5-18	1446	1500	507	0-138	12	12
130.30	26°29'	113°29'	5-17	2043	2050	277	0-63	65	65
130.35	26°19'	113°48'	5-17	1811	1826	468	0-146	62	62
130.40	26°09'	114°07'	5-17	1511	1525	441	0-138	351	351
130.45	25°58.5'	114°26.5'	5-17	1221	1235	475	0-135	57	57
130.50	25°53'	114°44'	5-17	1011	1025	478	0-143	27	27
130.55	25°43'	115°02'	5-17	0806	0820	482	0-142	21	21
130.60	25°32'	115°22'	5-17	0506	0520	484	0-140	12	12
133.25	26°04.5'	112°48'	5-16	0928	0935	236	0-56	47	47
133.30	25°54.5'	113°07.5'	5-16	1201	1216	520	0-138	38	38
133.35	25°44.5'	113°26.5'	5-16	1426	1440	499	0-138	48	48
133.40	25°34.5'	113°45.5'	5-16	1756	1810	458	0-147	33	33
134.36	25°38'	113°25'	5-16	1528	1536	288	0-75	35	35
137.23	25°34'	112°19'	5-16	0428	0435	252	0-41	206	206
137.30	25°20'	112°46'	5-16	0101	0116	486	0-137	238	238
137.35	25°10'	113°04.5'	5-15	2231	2246	492	0-146	283	283
137.40	25°00'	113°23.5'	5-15	2016	2030	531	0-145	494	494

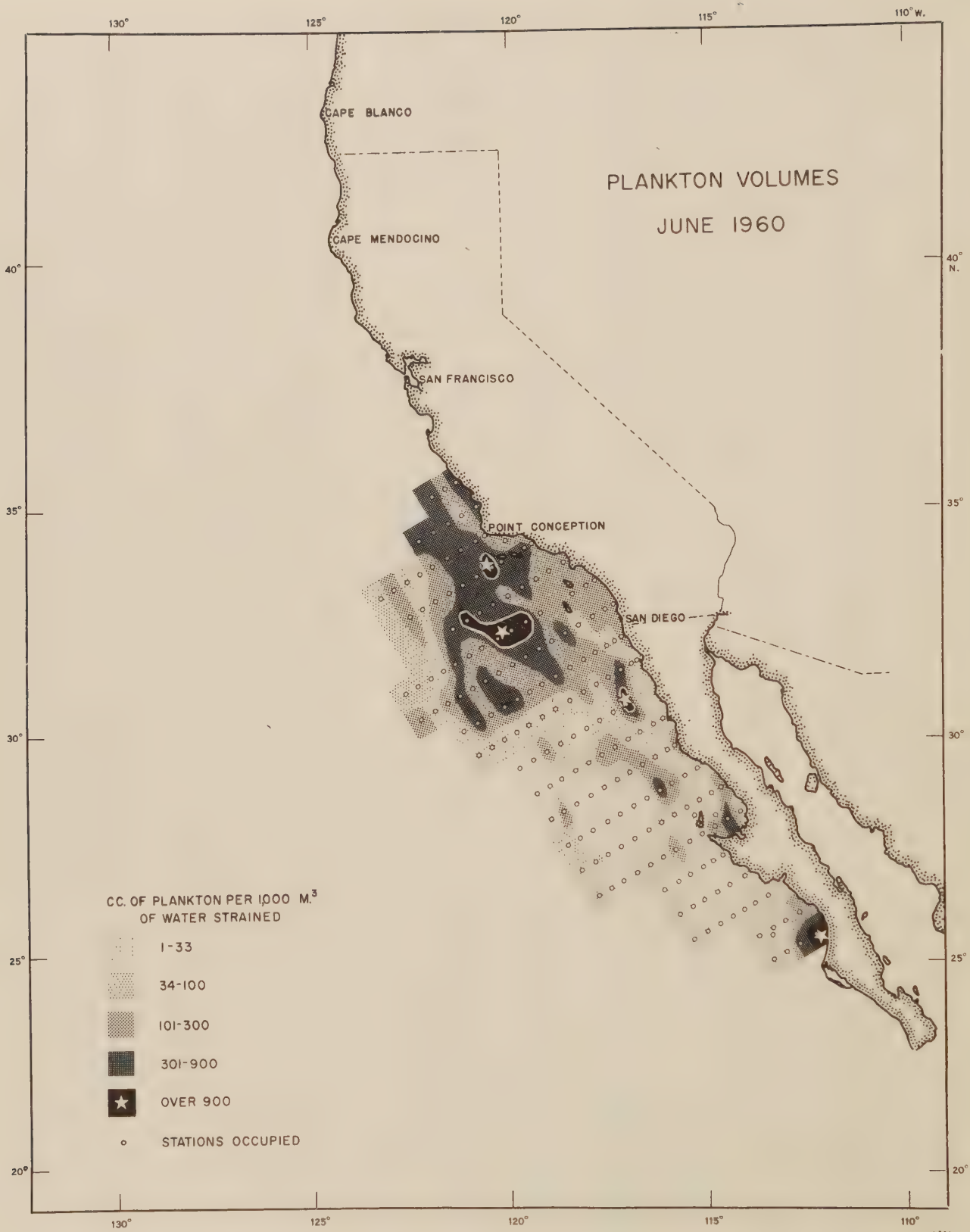


Figure 9.--Plankton volumes, June 1960.

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³	
				Start	End			Total cc.	Small organisms cc.
Cruise 6006, June 15-30, 1960									
73.51	35°35.3'	121°21.6'	6-16	0156	0210	480	0-140	533	533
73.55	35°28'	121°36.7'	6-15	2331	2346	453	0-143	181	161
73.60	35°17.5'	121°57.7'	6-15	2051	2106	472	0-145	881	881
77.50	35°04.9'	120°52.9'	6-16	0711	0726	435	0-139	928	450
77.55	34°55.6'	121°13'	6-16	0946	1000	592	0-108	93	93
77.60	34°44.7'	121°34'	6-16	1246	1300	440	0-139	449	379
77.65	34°34'	121°55'	6-16	1531	1546	480	0-137	434	434
77.70	34°23.9'	122°15.9'	6-16	1816	1830	394	0-140	378	378
80.52	34°23.5'	120°35.5'	6-18	0111	0126	518	0-140	284	284
80.55	34°18'	120°47.5'	6-17	2306	2320	674	0-124	368	321
80.60	34°05.8'	121°06.7'	6-17	2021	2036	508	0-139	668	416
80.65	34°00.5'	121°18.5'	6-17	1806	1820	480	0-139	363	363
80.70	33°49.3'	121°41'	6-17	1526	1541	577	0-139	336	291
80.75	33°39.1'	122°03.9'	6-17	1246	1300	546	0-139	51	51
80.80	33°29.3'	122°24.3'	6-17	1011	1026	554	0-139	78	78
80.85	33°19.7'	122°45.6'	6-17	0701	0716	537	0-140	151	151
80.90	33°09.7'	123°07'	6-17	0426	0440	474	0-142	97	97
82.47	34°15'	119°58'	6-18	0536	0550	410	0-140	261	261
83.40	34°13.8'	119°21.7'	6-18	1019	1022	104	0-20	299	299
83.43	34°08'	119°36.5'	6-18	0826	0840	519	0-142	383	383
83.51	33°51.8'	120°07.4'	6-18	1617	1628	395	0-104	342	342
83.55	33°42.8'	120°23.6'	6-18	1821	1836	546	0-148	1163	1163
83.60	33°31.1'	120°44.8'	6-18	2151	2206	583	0-141	410	393
83.65	33°20.8'	121°04.2'	6-19	0036	0050	513	0-140	337	337
83.70	33°09.5'	121°23.9'	6-19	0311	0325	619	0-142	263	263
83.75	32°58.4'	121°43'	6-19	0551	0606	507	0-140	258	258
83.80	32°47.7'	122°01.6'	6-19	0851	0906	520	0-139	85	85
83.85	32°36.6'	122°21'	6-19	1206	1220	520	0-139	188	188
87.35	33°49.5'	118°48.2'	6-21	0446	0501	506	0-139	239	239
87.40	33°40'	118°58.6'	6-21	0216	0230	512	0-139	272	272
87.45	33°30'	119°19.3'	6-20	2321	2036	495	0-131	277	277
87.50	33°20'	119°39.5'	6-20	2038	2045	222	0-61	536	536
87.55	33°01'	120°00'	6-20	1621	1636	502	0-134	245	245
87.60	33°02.5'	120°23'	6-20	1346	1400	500	0-141	366	366
87.65	32°48.1'	120°51'	6-20	0906	0920	509	0-141	434	434
87.70	32°39'	121°09'	6-20	0616	0630	504	0-141	960	960
87.75	32°29.5'	121°26.5'	6-20	0326	0341	547	0-142	426	426
90.28	33°28.1'	117°47.7'	6-21	1031	1046	537	0-137	218	218
90.32	33°20.6'	118°03.1'	6-21	1251	1306	456	0-142	129	129
90.37	33°10.4'	118°23.5'	6-23	0546	0600	519	0-139	193	193
90.50	32°45.4'	119°17.5'	6-23	1240	1248	256	0-71	266	266
90.55	32°35'	119°48.2'	6-23	1600	1614	408	0-140	1472	1472
90.60	32°24.6'	119°58'	6-23	1915	1930	422	0-139	1116	1116
90.65	32°14.1'	120°18'	6-23	2150	2204	451	0-142	910	910
90.70	32°04.2'	120°38'	6-24	0056	0110	495	0-141	220	220
90.75	31°53.9'	120°56.7'	6-24	0326	0341	502	0-142	197	197
90.80	31°43.7'	121°16.8'	6-24	0621	0636	465	0-142	312	312
90.85	31°33.6'	121°36.5'	6-24	0841	0856	520	0-138	37	37
90.90	31°23'	121°56.8'	6-24	1136	1150	512	0-139	84	84
90.95	31°12'	122°16.3'	6-24	1400	1414	497	0-142	91	91
90.100	31°01.6'	122°36.1'	6-24	1645	1700	510	0-140	45	45
93.28	32°54'	117°21.2'	6-26	1520	1534	523	0-137	228	228
93.30	32°49'	117°31'	6-26	1325	1339	486	0-139	944	191
93.35	32°37.9'	117°52'	6-26	0951	1006	526	0-139	242	242
93.40	32°23.7'	118°16.8'	6-26	0646	0700	480	0-142	94	94
93.45	32°14.1'	118°35'	6-26	0401	0416	490	0-139	382	382
93.50	32°03'	118°52.8'	6-26	0126	0140	461	0-140	297	297
93.55	31°53'	119°10.4'	6-25	2225	2240	462	0-137	413	413
93.60	31°43.8'	119°31.1'	6-25	1950	2004	414	0-139	461	461
93.65	31°34.8'	119°51'	6-25	1645	1700	480	0-141	298	298

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³	
				Start	End			Total	Small organisms
93.70	31°26.3'	120°10.8'	6-25	1410	1424	498	0-142	121	121
93.75	31°17.6'	120°31.1'	6-25	1036	1050	507	0-137	317	317
93.80	31°08.2'	120°52.9'	6-25	0821	0836	520	0-139	136	136
93.85	30°58.8'	121°14.2'	6-25	0526	0540	518	0-141	361	361
93.90	30°49.3'	121°35'	6-25	0251	0306	516	0-142	126	126
93.95	30°41.5'	121°54'	6-24	2345	2359	483	0-142	97	97
93.100	30°32'	122°12'	6-24	2115	2130	505	0-140	208	208
97.30	32°15.2'	117°08.2'	6-27	1454	1459	200	0-41	145	145
97.32	32°09.9'	117°15.5'	6-27	1626	1641	571	0-138	51	51
97.35	32°04.7'	117°28.7'	6-27	1806	1820	504	0-140	50	50
97.40	31°53'	117°48'	6-27	2036	2050	539	0-140	102	102
97.45	31°42'	118°07'	6-27	2321	2336	521	0-142	144	144
97.50	31°31'	118°26.7'	6-28	0201	0216	506	0-145	203	203
97.55	31°20'	118°46'	6-28	0436	0450	503	0-141	336	336
97.60	31°08.9'	119°05.8'	6-28	0736	0750	519	0-139	279	279
97.65	30°55.9'	119°28.5'	6-28	1051	1106	484	0-140	213	213
97.70	30°47.2'	119°49.2'	6-28	1316	1330	451	0-142	335	335
97.75	30°41.1'	120°09.6'	6-28	1556	1610	473	0-139	387	387
97.80	30°35'	120°30.5'	6-28	1846	1900	488	0-139	125	125
97.85	30°24.7'	120°50.8'	6-28	2126	2140	509	0-140	375	375
97.90	30°14.9'	120°08.5'	6-28-29	2356	0010	516	0-136	35	35
100.29	31°42'	116°43.4'	6-30	1511	1526	486	0-139	56	56
100.30	31°40.5'	116°46.6'	6-30	1416	1430	505	0-136	53	53
100.35	31°26.7'	117°08.5'	6-30	1101	1116	467	0-136	310	310
100.40	31°16.1'	117°27.2'	6-30	0841	0856	484	0-137	233	233
100.45	31°07'	117°47.5'	6-30	0611	0626	469	0-142	83	83
100.50	30°57.1'	118°07.2'	6-30	0336	0350	470	0-141	130	130
100.55	30°49'	118°27'	6-30	0051	0106	470	0-140	60	60
100.60	30°39.9'	118°47.3'	6-29	2151	2206	468	0-143	51	51
100.65	30°31.7'	119°05'	6-29	1901	1916	513	0-135	45	45
100.70	30°20'	119°26.5'	6-29	1556	1610	472	0-143	61	61
100.75	30°09.5'	119°47'	6-29	1311	1326	478	0-141	75	75
100.80	29°59'	120°06'	6-29	1026	1040	518	0-116	79	79
100.85	29°50.2'	120°24'	6-29	0746	0800	525	0-137	139	78
100.90	29°41.2'	120°42.3'	6-29	0501	0516	514	0-137	41	41
103.40	30°46.0'	117°04.5'	6-29	1901	1916	469	0-143	945	945
103.45	30°36.0'	117°24.0'	6-29	1621	1635	475	0-143	51	51
103.50	30°33.5'	117°47.0'	6-29	1321	1335	510	0-137	65	65
103.55	30°28.5'	118°01.0'	6-29	1101	1116	498	0-142	30	30
103.60	30°13.0'	118°25.0'	6-29	0526	0540	506	0-142	20	20
103.65	30°00'	118°47.0'	6-29	0241	0256	491	0-136	45	45
103.70	29°49'	119°03.0'	6-28	2311	2326	478	0-145	174	174
103.75	29°38.5'	119°24.0'	6-28	2036	2050	483	0-146	33	33
103.80	29°26.5'	119°44.0'	6-28	1806	1820	498	0-143	22	22
107.32	30°25.8'	116°11.0'	6-27	1151	1206	533	0-135	66	66
107.35	30°21.5'	116°22.5'	6-27	1331	1346	592	0-116	41	41
107.40	30°11'	116°42'	6-27	1556	1610	490	0-137	51	51
107.45	30°01.5'	117°02.0'	6-27	1821	1836	538	0-134	56	56
107.50	29°50.5'	117°22.0'	6-27	2046	2100	532	0-121	244	244
107.55	29°41.0'	117°42.0'	6-27	2311	2326	462	0-142	216	216
107.60	29°32.0'	118°01.5'	6-28	0141	0156	494	0-135	53	53
107.65	29°21.0'	118°21.0'	6-28	0521	0536	465	0-140	45	45
107.70	29°11.0'	118°41.0'	6-28	0726	0741	484	0-142	17	17
107.75	29°01.5'	119°01.0'	6-28	1021	1035	488	0-141	12	12
107.80	28°51.5'	119°20.5'	6-28	1246	1301	500	0-141	16	16
110.33	29°52.5'	115°52.0'	6-27	0723	0731	276	0-66	105	105
110.35	29°49.5'	116°00.0'	6-27	0616	0631	466	0-142	15	15
110.40	29°38.0'	116°21'	6-27	0306	0320	469	0-144	81	81
110.45	29°26.5'	116°39.5'	6-27	0026	0041	462	0-139	124	124
110.50	29°16.5'	116°59'	6-26	2146	2201	485	0-142	76	76

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³	
				Start	End			Total	Small organisms cc.
110.55	29°06.5'	117°19'	6-26	1911	1926	471	0-144	100	100
110.60	28°56.5'	117°38'	6-26	1530	1545	532	0-138	15	15
110.65	28°46'	117°59'	6-26	1236	1251	517	0-144	15	15
110.70	28°36.5'	118°18'	6-26	0926	0941	504	0-140	18	18
110.75	28°26'	118°37'	6-26	0601	0616	483	0-141	174	174
110.80	28°16.5'	118°57.5'	6-26	0321	0336	477	0-145	27	27
113.30	29°22'	115°18'	6-24	1924	1930	194	0-51	52	52
113.35	29°11.5'	115°38'	6-24	2150	2206	500	0-137	54	54
113.40	29°01.5'	115°57.8'	6-25	0036	0051	464	0-143	134	134
113.45	28°51.3'	116°20'	6-25	0331	0346	492	0-142	461	350
113.50	28°40.5'	116°41'	6-25	0601	0616	542	0-138	11	11
113.55	28°29'	117°02'	6-25	0951	1005	534	0-130	7	7
113.60	28°19'	117°24'	6-25	1216	1230	492	0-140	24	24
113.65	28°12'	117°36'	6-25	1506	1520	491	0-141	33	33
113.70	28°02'	117°55'	6-25	1731	1746	508	0-136	18	18
113.75	27°52.5'	118°14'	6-25	1956	2010	483	0-136	23	23
113.80	27°42'	118°33.5'	6-25	2221	2236	494	0-141	43	43
117.26	28°56'	114°41.5'	6-24	1443	1451	282	0-72	174	174
117.30	28°48'	114°56.5'	6-24	1238	1247	353	0-93	17	17
117.35	28°38'	115°16'	6-24	1026	1040	533	0-138	39	39
117.40	28°28'	115°35.5'	6-24	0026	0040	516	0-136	54	54
117.45	28°18'	115°56'	6-23	2141	2156	513	0-138	64	64
117.50	28°10.5'	116°18'	6-23	1806	1821	522	0-141	52	52
117.55	28°00'	116°37'	6-23	1501	1516	587	0-127	3	3
117.60	27°50'	116°55'	6-23	1236	1251	568	0-136	7	7
117.65	27°37.5'	117°13.5'	6-23	1001	1016	543	0-137	9	9
117.70	27°28'	117°32.5'	6-23	0721	0736	535	0-137	4	4
117.75	27°17'	117°52'	6-23	0446	0501	517	0-139	52	52
117.80	27°08'	118°10.5'	6-23	0101	0116	508	0-137	53	53
118.39	28°18'	115°23.7'	6-24	0226	0241	531	0-139	81	81
119.33	28°19'	114°53'	6-21	1050	1101	417	0-105	62	62
120.25	28°22.5'	114°15'	6-21	0651	0656	199	0-50	65	65
120.30	28°13'	114°34'	6-21	0423	0431	313	0-84	364	364
120.35	28°03'	114°54'	6-21	0143	0151	298	0-64	285	285
120.40	27°56.3'	115°14'	6-21	2104	2108	176	0-25	51	51
120.45	27°43'	115°33'	6-21	2316	2330	505	0-137	54	54
120.50	27°33'	115°52.5'	6-22	0151	0206	552	0-133	285	172
120.55	27°23'	116°12'	6-22	0636	0651	536	0-132	58	58
120.60	27°13'	116°30.5'	6-22	0901	0915	527	0-136	40	40
120.65	27°04'	116°49'	6-22	1136	1150	536	0-130	56	56
120.70	26°53'	117°09'	6-22	1416	1431	516	0-133	29	29
120.75	26°42.5'	117°30'	6-22	1701	1715	509	0-137	16	16
120.80	26°32.5'	117°49'	6-22	1916	1930	486	0-139	41	41
123.37	27°24'	114°40'	6-20	1908	1915	233	0-62	43	43
123.42	27°14'	114°59'	6-20	1231	1246	530	0-143	19	19
123.45	27°08'	115°11.5'	6-20	1051	1106	584	0-131	3	3
123.50	26°58'	115°31'	6-20	0806	0821	524	0-135	48	48
123.55	26°48.5'	115°49.5'	6-20	0425	0441	559	0-140	30	30
123.60	26°38.5'	116°09'	6-20	0131	0146	548	0-141	35	35
127.34	26°55'	114°06.5'	6-19	0623	0631	265	0-68	72	72
127.40	26°43.5'	114°29'	6-19	0901	0916	518	0-134	12	12
127.45	26°33'	114°48.5'	6-19	1106	1121	494	0-134	20	20
127.50	26°23'	115°08'	6-19	1546	1600	538	0-139	9	9
127.55	26°13.5'	115°27'	6-19	1806	1821	528	0-141	27	27
127.60	26°03.5'	115°46.5'	6-19	2031	2046	534	0-138	43	43
130.30	26°29'	113°29'	6-19	0043	0050	238	0-63	84	84
130.35	26°19'	113°48'	6-18	2201	2216	488	0-139	64	64
130.40	26°09'	114°07'	6-18	1620	1635	505	0-140	18	18
130.45	25°58.5'	114°26.5'	6-18	1351	1405	506	0-143	20	20
130.50	25°49'	114°45'	6-18	1120	1136	493	0-143	14	14

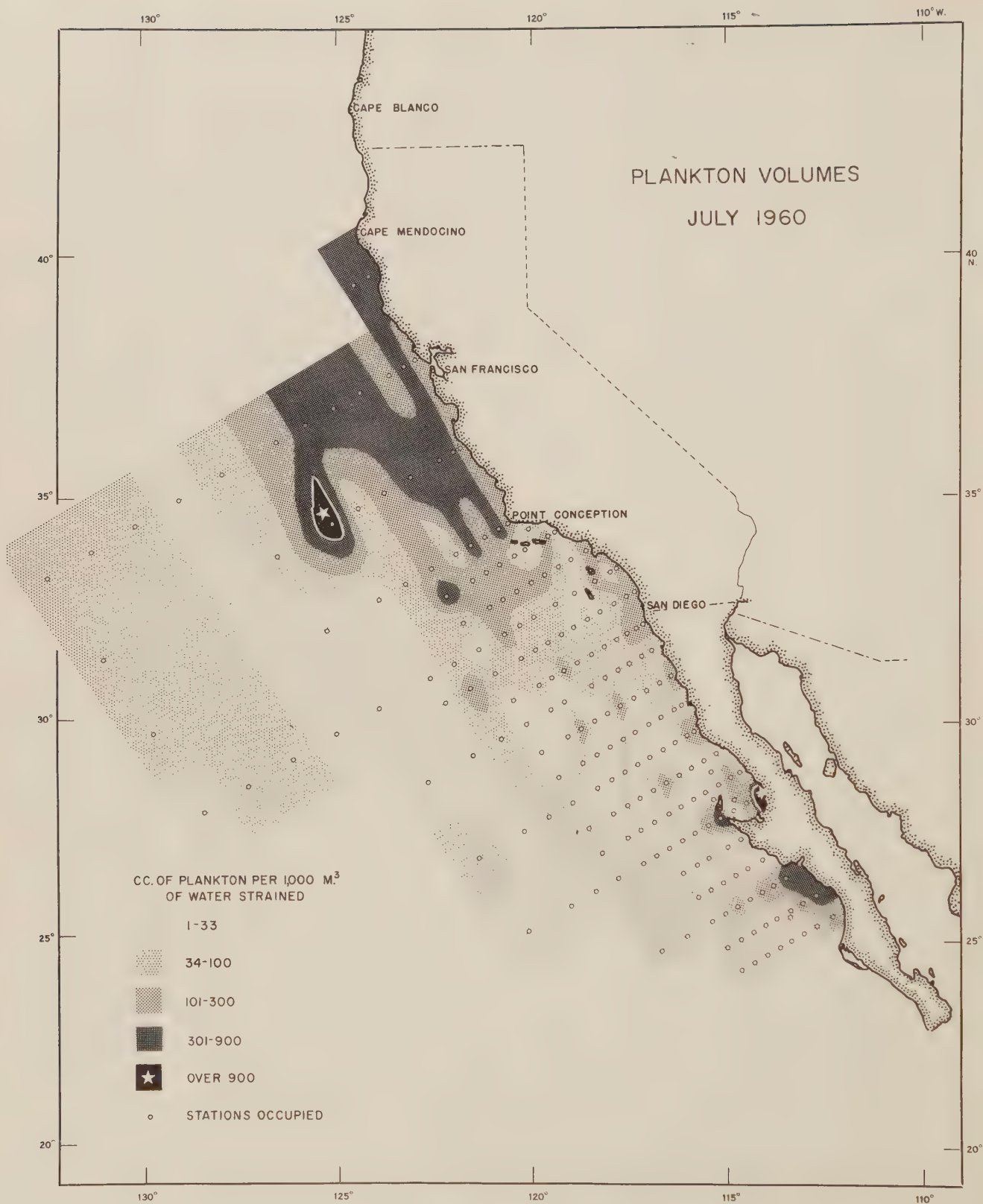


Figure 10.--Plankton volumes, July 1960.

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m. ³	
								Total	Small organisms
				Start	End	m. ³	m.	cc.	cc.
130.55	25°39'	115°04'	6-18	0856	0911	484	0-142	12	12
130.60	25°29'	115°24'	6-18	0631	0646	492	0-142	53	53
133.25	26°04.5'	112°48'	6-17	1123	1130	260	0-71	150	150
133.30	25°54.5'	113°07.5'	6-17	1421	1436	493	0-140	73	73
133.35	25°44.5'	113°26.5'	6-17	1701	1715	482	0-140	35	35
133.40	25°34.5'	113°45.5'	6-17	2001	2017	536	0-139	63	63
134.36	25°38'	113°25'	6-17	1753	1805	406	0-105	15	15
137.23	25°34'	112°19'	6-17	0658	0705	280	0-64	1181	1181
137.30	25°20'	112°46'	6-17	0316	0331	297	0-137	411	411
137.35	25°10'	113°04.5'	6-17	0056	0111	487	0-144	41	41
137.40	25°00'	113°23.5'	6-16	2121	2136	528	0-135	49	49
Cruise 6007, July 12-August 14, 1960									
50.50	39°39.9'	124°07'	7-21	1906	1921	522	0-123	475	475
50.55	39°30.2'	124°30'	7-21	2036	2051	600	0-112	448	428
60.52	37°54.3'	123°02.5'	7-25	2140	2148	243	0-57	128	128
60.55	37°48'	123°15.5'	7-25	2310	2319	377	0-51	390	390
60.60	37°37.2'	123°40'	7-26	0206	0222	478	0-145	209	209
60.70	37°18.6'	124°24.5'	7-26	0716	0730	496	0-126	476	476
60.80	37°00'	125°07.5'	7-26	1126	1141	495	0-129	851	851
60.90	36°40.5'	125°49.5'	7-26	1725	1740	495	0-133	329	329
60.100	36°21'	126°32'	7-26	2155	2210	677	0-88	267	267
60.120	35°40'	127°53.5'	7-27	0556	0610	532	0-126	49	49
60.140	34°59'	129°15.5'	7-27	1410	1424	585	0-102	12	12
60.160	34°14.6'	130°44.7'	7-27-28	2355	0010	547	0-112	62	62
60.180	33°32.5'	132°08.5'	7-28	0811	0826	546	0-114	40	40
60.200	32°51'	133°30.8'	7-28	1656	1710	477	0-139	44	44
70.53	36°08.6'	121°50.4'	7-20	1716	1731	566	0-105	406	251
70.55	36°05.5'	122°05'	7-20	1456	1510	458	0-139	572	572
70.60	35°58'	122°22'	7-20	1230	1244	420	0-147	307	307
70.70	35°33.5'	123°07.3'	7-20	0456	0510	470	0-138	515	515
70.80	35°14.8'	123°50.3'	7-19	2225	2240	477	0-145	170	170
70.90	34°53'	124°25.5'	7-19	1705	1720	519	0-140	60	60
70.100	34°26.8'	125°06.9'	7-19	1056	1111	497	0-133	1050	1050
70.120	33°51.5'	126°36.5'	7-19	0105	0120	688	0-83	61	61
70.200	31°02'	132°13'	7-29	0826	0841	503	0-126	58	58
80.52	34°24.3'	120°36.1'	7-16	2206	2221	568	0-116	261	261
80.55	34°20.3'	120°49'	7-17	0036	0050	470	0-140	325	325
80.60	34°07'	121°12'	7-17	0456	0511	467	0-147	135	135
80.65	33°56'	121°34'	7-17	0726	0741	497	0-132	360	360
80.70	33°47.5'	121°49.5'	7-17	1026	1040	494	0-131	93	93
80.80	33°25'	122°35.2'	7-17	1631	1646	456	0-146	138	138
80.90	33°04'	123°21.5'	7-17	2200	2215	627	0-96	37	37
80.100	32°41'	124°10'	7-18	0336	0350	555	0-121	29	29
80.120	32°06.8'	125°12'	7-18	1016	1031	466	0-150	26	26
80.200	29°24'	130°52.5'	7-29	2111	2126	521	0-123	267	60
82.47	34°15'	119°58'	7-12	1126	1140	483	0-140	85	85
83.40	34°14'	119°22'	7-12	0700	0701	63	0-13	32	32
83.43	34°08'	119°34'	7-12	0826	0841	476	0-140	149	149
83.51	33°52'	120°08.5'	7-12	1509	1520	471	0-106	4	4
83.55	33°44'	120°24.5'	7-12	1721	1736	505	0-138	42	42
83.60	33°34'	120°45'	7-12	1956	2011	502	0-137	205	205
83.65	33°24'	121°06'	7-12	2231	2246	457	0-140	134	134
83.70	33°14.5'	121°26'	7-13	0116	0131	521	0-126	113	113
83.80	32°54'	122°08'	7-13	0611	0626	499	0-132	457	457
87.35	33°50'	118°37.5'	7-14	1051	1106	489	0-135	108	108
87.40	33°40'	118°58'	7-14	0821	0836	487	0-132	18	18
87.45	33°30'	119°19'	7-14	0601	0616	500	0-128	54	54
87.50	33°29.7'	119°44'	7-14	0329	0341	369	0-113	650	263

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³	
				Start	End			Total cc.	Small organisms cc.
87.55	33°15'	120°05'	7-14	0000	0015	440	0-143	107	107
87.60	33°03'	120°24'	7-13	2100	2115	477	0-140	145	145
87.65	32°51'	120°43'	7-13	1831	1845	472	0-135	229	229
87.70	32°39.5'	121°02'	7-13	1546	1600	502	0-131	141	141
87.80	32°19.5'	121°43'	7-13	1026	1040	495	0-132	46	46
90.28	33°28.5'	117°46.7'	7-14	2216	2230	486	0-135	156	156
90.32	33°20.5'	118°03'	7-15	0121	0136	457	0-134	94	94
90.37	33°11'	118°22.5'	7-15	0445	0500	550	0-138	194	194
90.45	32°54.5'	118°55.5'	7-15	0941	0956	454	0-140	31	31
90.53	32°39'	119°28.5'	7-15	1426	1441	460	0-146	35	35
90.60	32°25'	119°57.5'	7-15	1946	2000	474	0-143	61	61
90.65	32°15'	120°19'	7-15	2341	2355	461	0-139	54	54
90.70	32°06'	120°41'	7-16	0226	0241	473	0-141	123	123
90.80	31°46'	121°27'	7-16	0746	0800	462	0-141	30	30
90.90	31°27.5'	122°02'	7-16	1221	1235	467	0-144	75	75
90.100	31°05'	122°39'	7-16	1846	1901	503	0-138	20	20
90.120	30°25'	123°56'	8-1	0146	0201	447	0-150	20	20
90.140	29°48'	125°20.5'	7-31	1656	1710	509	0-144	10	10
90.160	29°09.9'	126°43'	7-31	0756	0810	434	0-145	53	53
90.180	28°31'	128°01'	7-30	2316	2331	475	0-141	72	72
90.200	27°47.3'	129°29.5'	7-30	0956	1011	449	0-146	31	31
93.28	32°54.7'	117°21.8'	7-18-19	2351	0006	562	0-128	201	201
93.30	32°50.5'	117°31'	7-18	2141	2156	527	0-126	108	108
93.35	32°40.5'	117°51.5'	7-18	1851	1905	481	0-139	50	50
93.40	32°30'	118°11.5'	7-18	1601	1616	496	0-138	18	18
93.45	32°20'	118°32'	7-18	1316	1330	500	0-141	50	50
93.50	32°10'	118°52.5'	7-18	1021	1035	503	0-139	30	30
93.55	32°00'	119°13.5'	7-18	0346	0400	494	0-143	93	93
93.60	31°50'	119°34'	7-18	0011	0026	480	0-144	65	65
93.65	31°40'	119°53.5'	7-17	2101	2115	502	0-130	80	80
93.70	31°30'	120°14'	7-17	1751	1806	461	0-144	37	37
93.80	31°10'	120°54.5'	7-17	1216	1230	494	0-141	57	57
93.90	30°47'	121°41'	7-17	0601	0616	483	0-141	108	108
93.100	30°30.5'	112°14'	7-16-17	2356	0010	479	0-141	25	25
97.30	32°16'	117°07'	7-20	1504	1508	140	0-34	107	107
97.32	32°12'	117°15.2'	7-20	1601	1616	487	0-141	220	220
97.35	32°05.5'	117°27.5'	7-20	1726	1741	464	0-138	110	110
97.40	31°56'	117°48'	7-20	1941	1955	469	0-141	75	75
97.45	31°46'	118°08.5'	7-20	2221	2235	482	0-140	87	87
97.50	31°36'	118°29'	7-21	0041	0056	487	0-139	84	84
97.55	31°25.5'	118°49.5'	7-21	0316	0331	479	0-138	73	73
97.60	31°15.5'	119°10'	7-21	0636	0650	479	0-143	157	157
97.65	31°10'	119°30'	7-21	1051	1105	463	0-141	24	24
97.70	30°59'	119°54'	7-21	1401	1415	499	0-137	38	38
97.80	30°35'	120°31'	7-21	1816	1830	502	0-137	16	16
100.30	31°39.5'	116°46.6'	8-3	1346	1401	472	0-151	47	47
100.35	31°31'	117°08.2'	8-3	1046	1100	453	0-153	60	60
100.40	31°20.5'	117°27'	8-3	0746	0800	452	0-144	42	42
100.45	31°10.5'	117°46'	8-3	0456	0510	492	0-139	83	83
100.50	31°00'	118°05'	8-3	0216	0230	449	0-155	98	98
100.55	30°49'	118°24.7'	8-2	2256	2311	503	0-131	68	68
100.65	30°27.8'	119°05'	8-2	1726	1741	540	0-124	9	9
100.70	30°18.3'	119°24.5'	8-2	1456	1511	530	0-131	8	8
100.80	29°57.8'	120°09'	8-2	0916	0931	450	0-152	24	24
100.90	29°40'	120°45'	8-2	0446	0500	442	0-158	82	82
100.100	29°26'	121°21'	8-1	2336	2351	518	0-129	23	23
100.120	28°40.5'	122°46.5'	8-1	1416	1431	512	0-133	25	25
103.30	31°04'	116°28.5'	7-23	0203	0210	261	0-68	119	119
103.35	30°56'	116°45'	7-22	2336	2350	492	0-138	59	59
103.40	30°46'	117°04.5'	7-22	2051	2106	479	0-140	63	63

Table 5. --Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m. ³	
								Total	Small organisms
				Start	End	m. ³	m.	cc.	cc.
103.45	30°38'	117°25'	7-22	1821	1835	481	0-129	15	15
103.50	30°30'	117°46'	7-22	1546	1600	435	0-139	115	115
103.55	30°18'	118°12'	7-22	1251	1305	478	0-139	23	23
103.60	30°09'	118°27'	7-22	1041	1055	500	0-141	6	6
103.65	29°56.5'	118°44'	7-22	0816	0830	488	0-139	187	187
103.70	29°46'	118°59'	7-22	0621	0635	500	0-139	10	10
103.80	29°28'	119°37'	7-22	0216	0230	516	0-137	29	29
107.32	30°25.8'	116°11'	7-23	0626	0640	481	0-139	40	40
107.35	30°21.5'	116°22.5'	7-23	0816	0830	473	0-138	74	74
107.40	30°11'	116°42'	7-23	1046	1100	447	0-139	60	60
107.45	30°01.5'	117°02'	7-23	1326	1340	465	0-143	15	15
107.50	29°50.5'	117°22'	7-23	1556	1610	483	0-140	10	10
107.55	29°40'	117°44'	7-23	1846	1901	481	0-138	56	56
107.60	29°31'	118°02'	7-23	2041	2055	469	0-134	23	23
107.65	29°21'	118°21'	7-23	2251	2305	485	0-131	27	27
107.70	29°11'	118°41'	7-24	0116	0131	512	0-137	35	35
107.80	28°51.5'	119°20.5'	7-24	0526	0540	480	0-138	8	8
110.33	29°50'	115°53'	8-4	2247	2258	374	0-104	356	270
110.35	29°46.5'	116°00.7'	8-5	0056	0111	503	0-132	167	167
110.40	29°35.4'	116°22'	8-5	0356	0411	457	0-151	26	26
110.45	29°25'	116°43.3'	8-5	0626	0641	508	0-134	6	6
110.50	29°15.2'	117°03'	8-5	0856	0910	460	0-146	28	28
110.55	29°08.3'	117°19'	8-5	1136	1151	465	0-147	11	11
110.60	29°00.8'	117°36'	8-5	1416	1430	493	0-138	67	67
110.65	28°50.5'	117°59'	8-5	1616	1630	501	0-136	4	4
110.70	28°41.6'	118°18'	8-5	1916	1931	484	0-136	31	31
110.80	28°21'	118°55'	8-6	0026	0040	490	0-131	57	57
110.90	28°00'	119°33.5'	8-6	0526	0540	486	0-146	56	56
110.100	27°37.2'	120°14'	8-6	0956	1011	499	0-139	18	18
110.120	26°55'	121°31'	8-6	1756	1810	500	0-143	34	34
113.30	29°21'	115°18'	7-25	1608	1614	222	0-51	90	90
113.35	29°09.5'	115°36'	7-25	1341	1356	485	0-142	27	27
113.40	29°01'	115°56.8'	7-25	1056	1110	501	0-142	22	22
113.45	28°47.2'	116°17.6'	7-25	0811	0825	486	0-140	76	76
113.50	28°40'	116°36'	7-25	0541	0556	452	0-139	135	135
113.55	28°32'	116°57'	7-25	0301	0315	436	0-137	94	94
113.60	28°22'	117°16.5'	7-25	0021	0035	472	0-139	28	28
113.65	28°12'	117°36'	7-24	2146	2200	484	0-135	52	52
113.70	28°02'	117°55'	7-24	1911	1925	458	0-140	15	15
113.80	27°42'	118°33.5'	7-24	1436	1450	474	0-140	46	46
115.35	28°55'	115°24'	8-14	0156	0211	461	0-145	17	17
117.26	28°56'	114°41.5'	7-25	2018	2025	268	0-57	45	45
117.30	28°48	114°56.5'	7-25	2247	2257	366	0-74	112	112
117.35	28°38'	115°16'	7-26	2326	2340	468	0-140	53	53
117.40	28°28'	115°35.5'	7-27	0206	0221	500	0-138	60	60
117.45	28°17.5'	115°56'	7-27	0436	0450	486	0-138	18	18
117.50	28°09'	116°13.5'	7-27	0656	0710	444	0-137	25	25
117.55	27°58'	116°34.5'	7-27	0941	0956	470	0-135	96	96
117.60	27°45'	116°55'	7-27	1226	1241	470	0-135	6	6
117.65	27°37.5'	117°13.5'	7-27	1436	1451	474	0-140	19	19
117.70	27°28'	117°32.5'	7-27	1716	1730	469	0-137	11	11
117.80	27°08'	118°10.5'	7-27	2136	2151	472	0-138	36	36
118.39	28°18.5'	115°23.7'	7-26	2031	2045	485	0-138	68	68
119.33	28°18.5'	114°52'	8-13	2007	2018	398	0-77	181	181
120.25	28°22.5'	114°15'	7-26	0334	0338	141	0-35	1814	1814
120.30	28°13'	114°34'	7-26	0548	0556	280	0-74	125	125
120.35	28°03'	114°54'	7-26	0758	0806	331	0-60	33	33
120.40	27°56.5'	115°14'	7-26	1349	1354	173	0-25	607	607
120.45	27°44.8'	115°37'	8-8	1806	1821	467	0-146	126	126
120.50	27°36.4'	115°52.5'	8-8	1626	1641	467	0-144	45	45

Table 5. --Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³	
								Total cc.	Small organisms cc.
				Start	End				
120.55	27°26'	116°12.5'	8-8	1316	1331	515	0-131	45	45
120.60	27°14.5'	116°33.5'	8-8	1056	1110	547	0-119	18	18
120.65	27°03'	116°56'	8-8	0726	0741	480	0-140	35	35
120.70	26°52'	117°14.5'	8-8	0456	0510	500	0-147	36	36
120.80	26°32'	117°51.5'	8-8	0016	0030	490	0-137	84	84
120.90	26°13.5'	118°25.8'	8-7	1916	1931	478	0-148	31	31
120.100	25°53'	119°04.5'	8-7	1426	1441	520	0-132	17	17
120.120	25°13'	120°20.5'	8-7	0556	0611	492	0-147	6	6
123.37	27°24'	114°40'	7-28	2153	2201	267	0-66	34	34
123.42	27°14'	114°59'	7-28	1936	1950	466	0-137	32	32
123.50	26°58'	115°31'	7-28	1606	1621	500	0-134	54	54
123.55	26°48.5'	115°49.5'	7-28	1436	1450	468	0-140	24	24
123.60	26°38.5'	116°09'	7-28	0906	0921	466	0-141	41	41
127.34	26°55'	114°06.5'	7-29	0233	0240	271	0-65	11	11
127.40	26°43.5'	114°29'	7-29	0506	0520	483	0-134	31	31
127.45	26°33'	114°48.5'	7-29	0721	0736	481	0-137	37	37
127.50	26°23'	115°08'	7-29	0951	1006	478	0-138	27	27
127.55	26°13.5'	115°27'	7-29	1236	1251	477	0-133	57	57
127.60	26°03.5'	115°46.5'	7-29	1506	1521	466	0-142	39	39
130.30	26°28.2'	113°30'	8-9	0838	0845	239	0-63	326	326
130.35	26°17'	113°48.5'	8-9	0956	1010	476	0-138	200	200
130.40	26°03'	114°13.9'	8-9	1316	1330	471	0-141	112	112
130.45	25°56.3'	114°28.9'	8-9	1446	1500	504	0-131	42	42
130.50	25°49'	114°46.3'	8-9	1736	1750	495	0-142	145	145
130.55	25°40.5'	115°05'	8-9	1936	1950	508	0-133	37	37
130.60	25°29'	115°25'	8-9	2236	2250	429	0-152	19	19
130.70	25°09'	116°05'	8-10	0356	0411	461	0-146	69	69
130.80	24°49'	116°44'	8-10	0856	0911	524	0-128	50	50
133.25	26°05'	112°49.7'	8-11	2238	2246	289	0-53	447	447
133.30	25°52.5'	113°12'	8-12	0106	0121	536	0-122	185	185
133.35	25°41.6'	113°32'	8-12	0326	0341	508	0-125	37	37
133.40	25°33.5'	113°45.8'	8-12	0846	0901	473	0-141	30	30
133.45	25°23.2'	114°05'	8-12	1106	1121	444	0-150	38	38
133.50	25°13'	114°26.5'	8-12	1316	1331	437	0-158	11	11
133.55	25°05'	114°47.5'	8-12	1526	1540	503	0-135	74	74
133.60	24°55'	115°09.2'	8-12	1746	1801	519	0-134	37	37
134.36	25°37'	113°25'	8-12	0557	0608	358	0-112	34	34
137.23	25°35'	112°19'	8-11	1758	1804	228	0-53	176	176
137.30	25°19'	112°46.5'	8-11	1226	1240	531	0-123	51	51
137.35	25°09'	113°02'	8-11	0936	0951	493	0-143	4	4
137.40	24°56.7'	113°20'	8-11	0716	0731	511	0-132	16	16
137.45	24°45.9'	113°37'	8-11	0426	0441	544	0-122	24	24
137.50	24°37'	113°59'	8-11	0201	0216	459	0-152	41	41
137.55	24°28.6'	114°19.5'	8-10	2306	2320	502	0-136	34	34
137.60	24°19'	114°41.3'	8-10	2036	2050	533	0-127	62	62

Cruise 6008, August 10-22, 1960

83.40	34°14'	119°22'	8-10	0709	0712	118	0-17	153	153
83.43	34°08'	119°34'	8-10	0841	0856	545	0-132	119	119
83.51	33°52'	120°08.5'	8-10	1336	1349	496	0-120	38	38
87.35	33°50'	118°37.5'	8-11	0351	0406	527	0-138	66	66
87.40	33°40'	118°58'	8-11	0056	0113	579	0-134	226	226
87.45	33°30'	119°19'	8-10	2221	2236	527	0-131	328	328
87.50	33°20'	119°39.5'	8-10	1946	1954	301	0-37	63	63
90.28	33°28.5'	117°46.7'	8-11	0926	0940	523	0-136	101	101
90.32	33°20.5'	118°03.3'	8-11	1156	1211	531	0-139	26	26
90.37	33°11'	118°22.5'	8-11	1521	1535	516	0-142	17	17
90.45	32°54.5'	118°55.5'	8-11	1951	2005	524	0-132	116	116
90.53	32°39'	119°28.5'	8-12	0059	0113	522	0-140	193	193

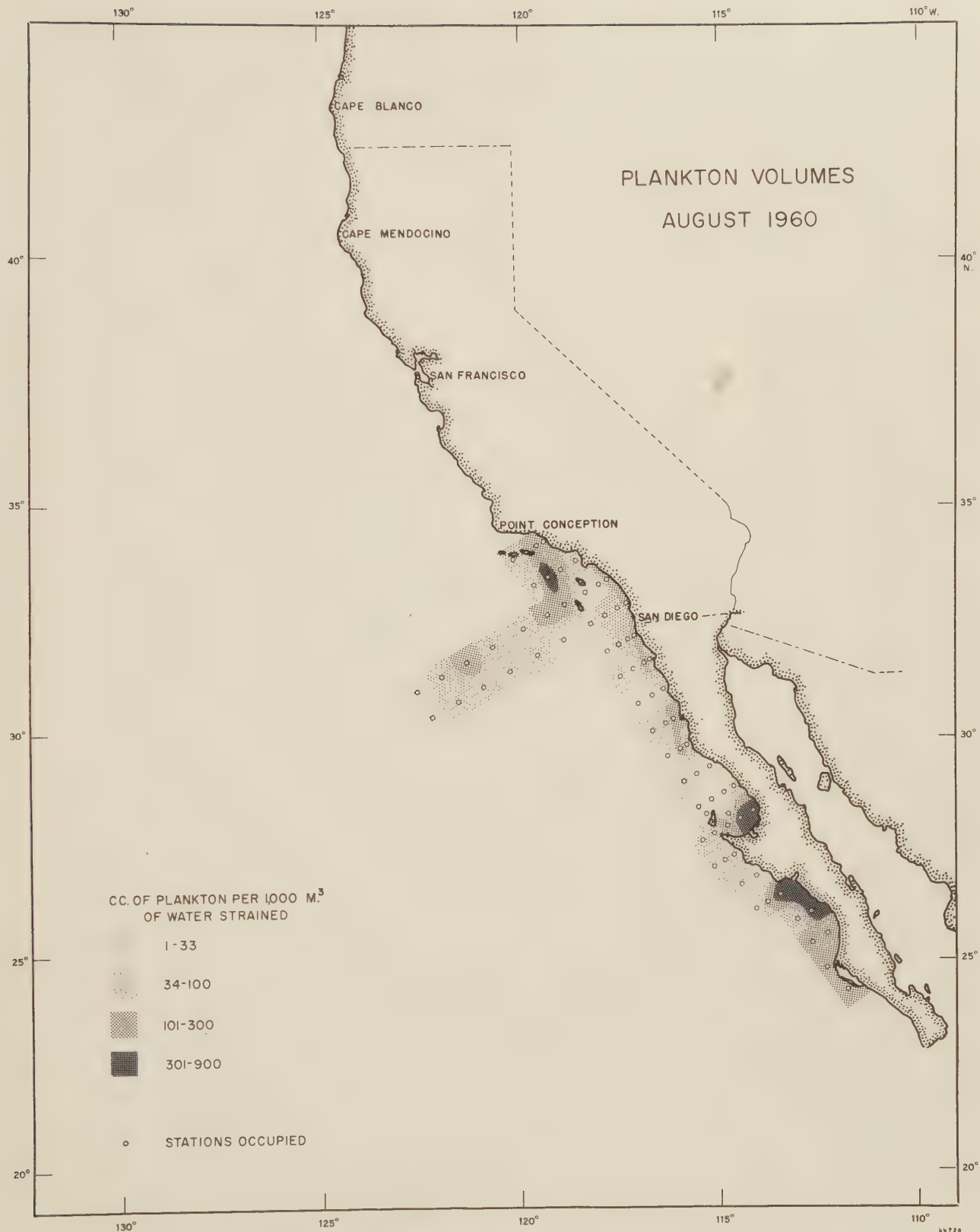


Figure 11.--Plankton volumes, August 1960.

Table 5. --Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³	
				Start	End			Total cc.	Small organisms cc.
90.60	32°25'	119°57.5'	8-12	0506	0520	512	0-137	100	100
90.70	32°04.5'	120°38.5'	8-12	1031	1045	484	0-138	66	66
90.80	31°44.5'	121°19.5'	8-12	1636	1651	480	0-137	144	144
90.90	31°24'	122°01'	8-12	2136	2151	498	0-137	60	60
90.100	31°05'	122°39'	8-13	0239	0254	514	0-147	25	25
93.28	32°54.7'	117°21.8'	8-15	0436	0450	522	0-134	123	123
93.30	32°50.5'	117°31'	8-15	0215	0230	502	0-138	84	84
93.35	32°40'	117°52'	8-14	2331	2345	532	0-134	83	83
93.40	32°30'	118°11.5'	8-14	1436	1450	503	0-144	26	26
93.50	32°10'	118°52.5'	8-14	0946	1000	513	0-133	14	14
93.60	31°50'	119°34'	8-14	0446	0500	494	0-145	51	51
93.70	31°30'	120°14'	8-13	2326	2341	506	0-140	93	93
93.80	31°10'	120°54.5'	8-13	1746	1800	481	0-149	100	100
93.90	30°51'	121°37'	8-13	1148	1202	496	0-143	50	50
93.100	30°34.3'	122°07'	8-13	0801	0816	502	0-132	26	26
97.30	32°16'	117°07'	8-16	2338	2344	246	0-48	110	110
97.32	32°12'	117°15.2'	8-16	2226	2241	535	0-129	54	54
97.35	32°01.5'	117°26.7'	8-16	2001	2016	526	0-130	44	44
97.40	31°56'	117°48'	8-16	1731	1746	523	0-136	17	17
100.29	31°42.2'	116°43.4'	8-17	0411	0426	508	0-135	43	43
100.30	31°40.5'	116°46.5'	8-17	0456	0511	518	0-135	108	108
100.35	31°30.5'	117°07'	8-17	0711	0725	492	0-139	14	14
100.40	31°21'	117°27'	8-17	0931	0945	475	0-142	86	86
103.30	31°06'	116°24.5'	8-17	1844	1852	264	0-68	83	83
103.35	30°56'	116°45'	8-17	1621	1635	493	0-140	16	16
103.40	30°46'	117°04.5'	8-17	1401	1416	481	0-146	4	4
107.32	30°25.8'	116°11'	8-17	2311	2326	474	0-138	150	150
107.35	30°21.5'	116°22.5'	8-18	0046	0101	484	0-137	50	50
107.40	30°11'	116°42'	8-18	0311	0325	471	0-142	34	34
110.33	29°50'	115°52'	8-18	1113	1121	301	0-89	43	43
110.35	29°46'	116°00'	8-18	0956	1010	490	0-142	141	141
110.40	29°36.5'	116°19.5'	8-18	0731	0746	523	0-131	10	10
113.30	29°22'	115°18'	8-18	1609	1613	153	0-31	26	26
113.35	29°11.5'	115°38'	8-18	1816	1831	501	0-137	28	28
113.40	29°02'	115°57'	8-18	2046	2101	487	0-139	62	62
117.26	28°56'	114°41.5'	8-19	1559	1604	284	0-29	67	67
117.30	28°48'	114°56.5'	8-19	1358	1405	266	0-67	4	4
117.35	28°38'	115°16'	8-19	1121	1135	507	0-139	4	4
117.40	28°28'	115°35.5'	8-19	0146	0200	511	0-142	33	33
118.39	28°18.5'	115°23.7'	8-19	0321	0335	506	0-138	24	24
119.33	28°19'	114°53'	8-20	0136	0144	259	0-71	93	93
120.25	28°22.5'	114°15'	8-19	2119	2123	162	0-28	377	377
120.30	28°13'	114°34'	8-19	2328	2335	287	0-61	370	370
120.35	28°03'	114°54'	8-20	0338	0346	291	0-64	134	134
120.40	27°56.5'	115°14'	8-20	0544	0548	178	0-27	51	51
120.45	27°43'	115°33'	8-20	0816	0830	482	0-139	71	71
123.37	27°24'	114°40'	8-20	1736	1744	304	0-58	56	56
123.42	27°14'	114°59'	8-20	1509	1524	490	0-146	82	82
123.45	27°08'	115°11.5'	8-20	1331	1346	509	0-138	57	57
127.34	26°55'	114°06.5'	8-20	2243	2251	322	0-54	22	22
127.40	26°43.5'	114°29'	8-21	0136	0151	543	0-131	72	72
130.30	26°29'	113°29'	8-21	1128	1135	278	0-61	528	528
130.35	26°16'	113°44.5'	8-21	0836	0850	518	0-135	168	168
130.40	26°09'	114°07'	8-21	0559	0614	525	0-132	30	30
133.25	26°04.5'	112°48'	8-21	1928	1936	347	0-65	591	591
133.30	25°54.5'	113°07.5'	8-21	2151	2206	560	0-130	37	37
137.23	25°34'	112°19'	8-22	0518	0526	330	0-56	239	239
137.30	25°20'	112°46'	8-22	0216	0230	529	0-138	286	286
140.30	24°45.5'	112°24'	8-22	1028	1034	355	0-51	225	225
143.26	24°19'	111°48'	8-22	1521	1525	175	0-33	131	131

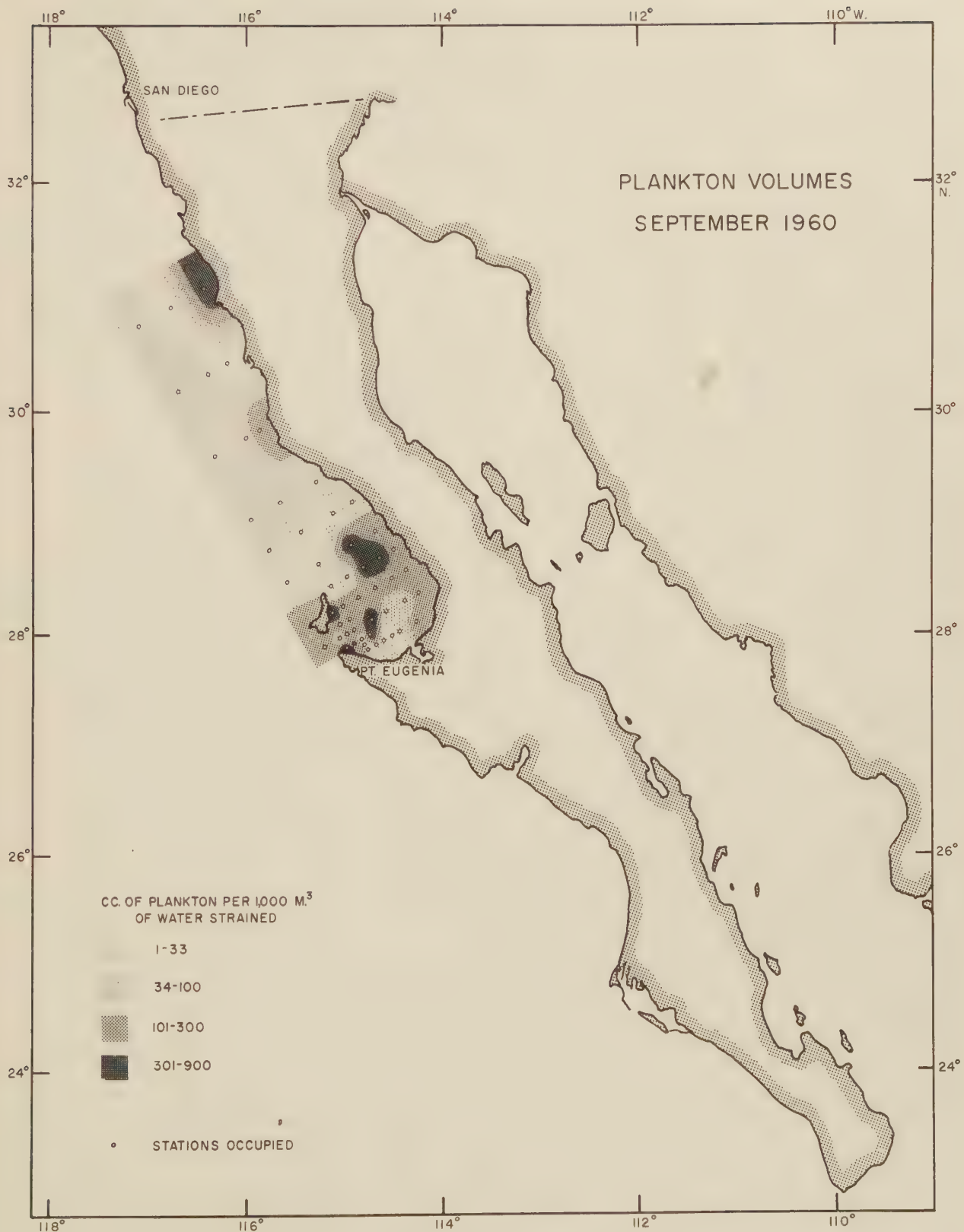


Figure 12.--Plankton volumes, September 1960.

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³	
				Start	End			Total	Small organisms cc.
Cruise 6009, September 9-13, 1960									
103.30	31°06'	116°24.5'	9-9	0636	0643	321	0-63	386	386
103.35	30°56'	116°45'	9-9	0351	0406	520	0-136	33	33
103.40	30°43.8'	117°03.7'	9-9	0051	0106	553	0-131	43	43
107.32	30°25.8'	116°11'	9-9	1126	1141	529	0-138	32	32
107.35	30°21.5'	116°22.5'	9-9	1306	1320	506	0-144	49	49
107.40	30°11'	116°42'	9-9	1546	1601	547	0-137	55	55
110.33	29°50'	115°52'	9-9	2348	2355	277	0-56	101	101
110.35	29°46'	116°00'	9-9	2226	2241	538	0-137	78	78
110.40	29°36.5'	116°19.5'	9-9	2001	2016	648	0-110	73	73
113.30	29°22'	115°18'	9-10	0516	0522	234	0-45	77	77
113.35	29°11.5'	115°38'	9-10	0727	0740	503	0-140	44	44
113.40	29°02'	115°57'	9-10	0946	1001	529	0-136	57	57
115.27	29°11'	114°55'	9-10	1845	1852	276	0-64	62	62
115.30	29°05'	115°08'	9-10	1711	1720	297	0-84	20	20
115.35	28°56.8'	115°28'	9-10	1436	1451	518	0-145	33	33
115.40	28°47'	115°48'	9-10	1201	1216	525	0-143	53	53
117.26	28°56'	114°41.5'	9-10	2113	2120	248	0-62	173	173
117.30	28°48'	114°56.5'	9-10	2302	2312	345	0-92	513	513
117.35	28°38'	115°16'	9-11	0126	0140	482	0-148	23	23
117.40	28°28'	115°35.5'	9-11	0420	0435	515	0-136	33	33
118.25	28°40.5'	114°25.5'	9-11	2223	2231	287	0-76	122	122
118.28	28°35.5'	114°35.5'	9-11	2053	2101	309	0-77	301	301
118.30	28°30.5'	114°45.5'	9-11	1902	1912	376	0-91	346	346
118.32	28°25.5'	114°55.2'	9-11	1732	1743	372	0-98	35	35
118.35	28°20.5'	115°05'	9-11	1558	1606	304	0-81	26	26
119.25	28°31.3'	114°20.5'	9-11	2348	2356	301	0-77	146	146
119.28	28°26.5'	114°30'	9-12	0113	0120	261	0-72	241	241
119.30	28°21.7'	114°39.5'	9-12	0243	0251	292	0-72	151	151
119.32	28°16.7'	114°49.5'	9-12	0417	0426	323	0-86	148	148
119.35	28°11.7'	114°59.5'	9-12	0548	0556	340	0-79	88	88
119.35	28°11.7'	114°59.5'	9-19	2023	2031	294	0-86	255	255
120.25	28°25.5'	114°15'	9-12	1707	1711	179	0-42	151	151
120.28	28°17.8'	114°24.5'	9-12	1538	1545	305	0-72	66	66
120.30	28°13'	114°34'	9-12	1418	1425	278	0-74	58	58
120.32	28°08'	114°44'	9-12	1243	1250	306	0-68	428	428
120.35	28°03'	114°54'	9-12	1058	1106	347	0-69	337	337
120.38	27°59.5'	115°04'	9-12	0938	0945	301	0-44	20	20
120.40	27°56.5'	115°14'	9-12	0819	0823	152	0-32	178	178
121.28	28°09'	114°18.8'	9-12	1914	1918	165	0-28	139	139
121.30	28°04.3'	114°28.3'	9-12	2213	2220	275	0-54	69	69
121.32	27°59.3'	114°38.4'	9-12	2323	2330	281	0-51	107	107
121.35	27°54.3'	114°48.4'	9-13	0044	0049	196	0-34	66	66
Cruise 6010, September 22-October 22, 1960									
60.52	37°53.5'	123°01.7'	9-26	0908	0915	190	0-61	1307	856
60.55	37°47.6'	123°15'	9-26	1037	1048	364	0-97	244	244
60.60	37°37'	123°37'	9-26	1326	1341	505	0-136	129	129
60.70	37°17.8'	124°23'	9-26	1810	1825	518	0-122	261	261
60.80	36°57'	125°04'	9-26	2246	2301	453	0-146	148	148
60.90	36°37'	125°45.5'	9-27	0306	0321	388	0-140	245	245
60.100	36°17'	126°30'	9-27	0806	0820	468	0-144	156	156
60.120	35°39.2'	127°54.5'	9-27	1611	1626	466	0-145	75	75
60.140	34°55.8'	129°18'	9-28	0004	0019	509	0-137	61	61
60.160	34°15'	130°41'	9-28	0831	0845	516	0-139	29	29
60.180	33°32.3'	132°03'	9-28	2215	2230	510	0-138	45	45
60.200	32°52.5'	133°28'	9-29	0616	0630	562	0-133	276	276
63.52	37°18.7'	122°36.7'	9-26	0408	0416	340	0-54	50	50
63.55	37°12.5'	122°49.8'	9-26	0126	0141	514	0-136	350	350
63.60	37°02.6'	123°11.4'	9-25	2111	2126	503	0-137	499	499

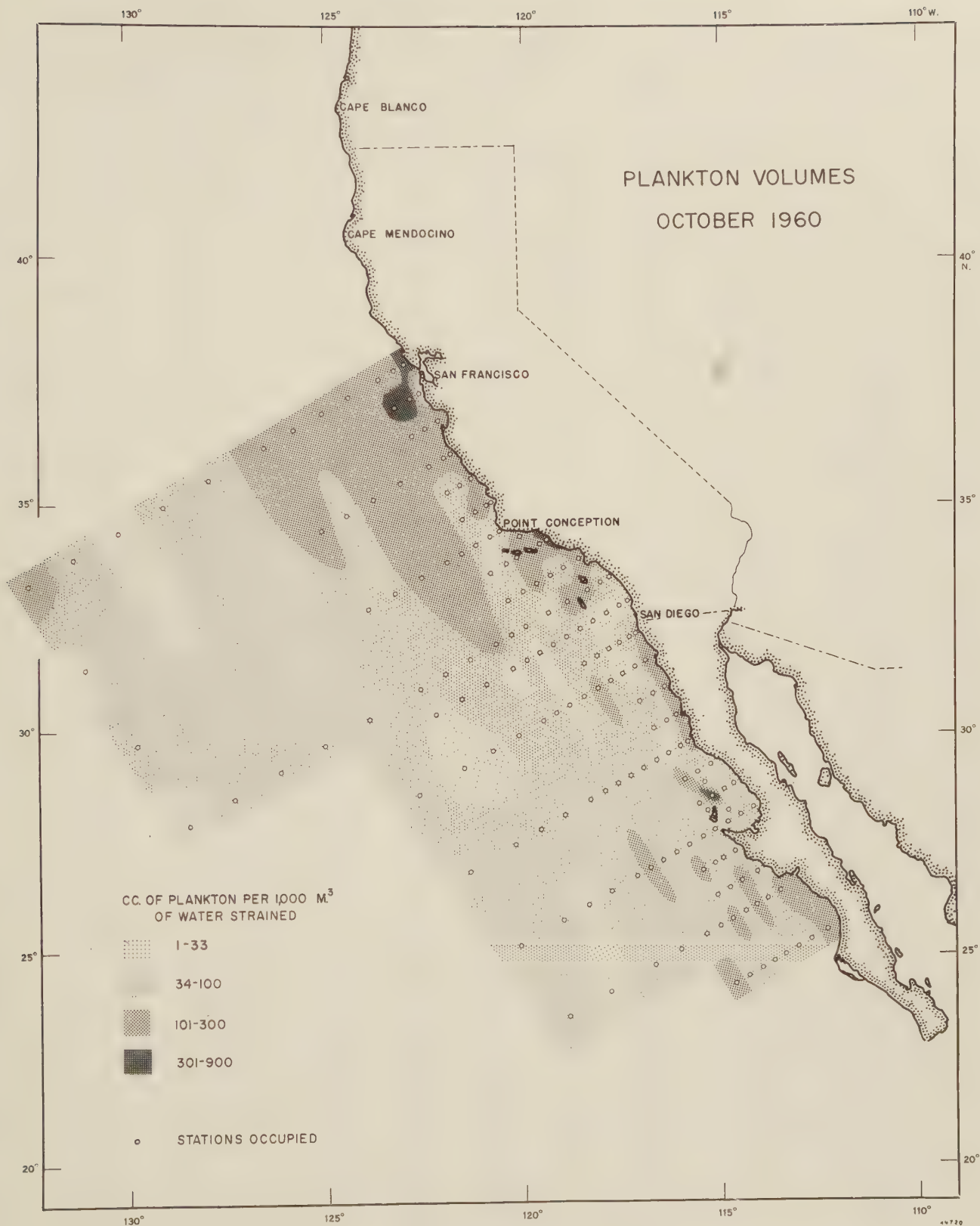


Figure 13.--Plankton volumes, October 1960.

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³	
				Start	End			Total cc.	Small organisms cc.
67.50	36°49'	122°03'	9-25	1017	1028	387	0-95	106	106
67.55	36°39.6'	122°26.4'	9-25	1216	1231	497	0-138	179	179
67.60	36°29'	122°47.5'	9-25	1631	1646	507	0-138	191	191
70.53	36°06'	121°56'	9-25	0416	0430	582	0-127	1146	287
70.55	36°03'	122°02.5'	9-25	0216	0230	525	0-137	191	191
70.60	35°53.2'	122°22.5'	9-24-25	2346	0001	532	0-131	164	164
70.70	35°33.5'	123°03.4'	9-24	1916	1931	518	0-133	193	193
70.80	35°14'	123°43'	9-24	1315	1330	527	0-134	203	203
70.90	34°54.8'	124°29'	9-24	0736	0751	537	0-141	58	58
70.100	34°32.5'	125°13.2'	9-24	0035	0051	515	0-143	210	210
70.200	31°12'	132°05.2'	9-29	1746	1800	548	0-134	27	27
73.51	35°35.4'	121°21'	10-10	0426	0440	460	0-140	196	196
73.55	35°28'	121°36.4'	10-10	0706	0721	641	0-111	75	75
73.60	35°17.9'	121°57.5'	10-10	1031	1045	468	0-142	68	68
77.50	35°04.1'	120°52'	10-10	2332	2343	404	0-109	57	57
77.51	35°02'	120°57'	10-10	2156	2210	502	0-137	111	111
77.55	34°54.2'	121°13'	10-10	1916	1931	612	0-115	144	144
77.60	34°44'	121°34'	10-10	1556	1610	485	0-143	68	45
80.52	34°25.2'	120°35'	9-22	1016	1031	552	0-134	52	52
80.55	34°18.8'	120°48'	9-22	1311	1326	551	0-127	24	24
80.60	34°09'	121°09.5'	9-22	1641	1655	544	0-140	46	46
80.65	33°58.9'	121°30.2'	9-22	1846	1901	539	0-133	243	243
80.70	33°48.5'	121°51.7'	9-22	2151	2206	497	0-153	183	183
80.80	33°28.5'	122°33.5'	9-23	0236	0251	522	0-141	176	176
80.90	33°08.8'	123°16.2'	9-23	0736	0750	580	0-128	81	81
80.100	32°49'	123°53.5'	9-23	1146	1201	521	0-134	63	63
80.200	29°26.7'	130°41.2'	9-30	0536	0551	611	0-131	41	41
82.47	34°12'	119°58'	10-11	1841	1855	495	0-139	192	192
83.40	34°14'	119°22'	10-11	2305	2306	89	0-11	831	831
83.43	34°08'	119°34'	10-11	2111	2125	503	0-137	254	254
83.51	33°52'	120°07.6'	10-11	1523	1531	270	0-70	267	267
83.55	33°44'	120°24.5'	10-11	1321	1336	513	0-138	47	47
83.60	33°34'	120°45'	10-11	0926	0941	506	0-138	57	22
87.55	33°50'	118°37.5'	10-12	0416	0430	488	0-144	106	106
87.40	33°40'	118°58.5'	10-12	0656	0710	508	0-139	98	98
87.45	33°30'	119°19'	10-12	0926	0940	459	0-141	65	65
87.50	33°20'	119°39.5'	10-12	1208	1215	243	0-74	103	103
87.55	33°14.5'	120°03.5'	10-12	1451	1506	475	0-143	51	51
87.60	33°00'	120°21.5'	10-12	1716	1730	483	0-134	68	68
90.28	33°28.2'	117°46.7'	10-4	0036	0051	590	0-115	80	80
90.32	33°22.8'	118°00'	10-3	2301	2315	488	0-143	84	84
90.37	33°10.7'	118°23.3'	10-3	1726	1740	509	0-142	112	112
90.45	32°55'	118°56.2'	10-3	1416	1431	491	0-137	181	181
90.53	32°41.6'	119°31.3'	10-3	1026	1040	513	0-136	25	25
90.60	32°27'	119°57'	10-3	0646	0701	585	0-128	97	97
90.65	32°17'	120°17'	10-3	0356	0411	522	0-141	752	71
90.70	32°06'	120°36.2'	10-3	0136	0151	509	0-139	108	108
90.80	31°45.2'	121°18.2'	10-2	2101	2115	507	0-140	57	57
90.90	31°25'	121°59'	10-2	1641	1655	502	0-121	46	46
90.100	31°05'	122°39'	10-2	1201	1216	553	0-124	45	45
90.120	30°25'	123°59.5'	10-2	0416	0431	553	0-136	52	52
90.140	29°45'	125°20.5'	10-1	2021	2036	509	0-140	65	65
90.160	29°06.5'	126°39'	10-1	0916	0932	500	0-142	38	38
90.180	28°29.6'	127°58.7'	10-1	0106	0121	502	0-142	54	54
90.200	27°43'	129°12.2'	9-30	1714	1729	548	0-137	20	20
93.28	32°54.7'	117°21.8'	10-15	1036	1050	496	0-135	22	22
93.30	32°50.5'	117°31.5'	10-15	0841	0855	512	0-130	105	20
93.35	32°39.5'	117°52.5'	10-15	0616	0632	534	0-143	11	11
93.40	32°30'	118°12.5'	10-15	0316	0331	485	0-142	23	23
93.45	32°20'	118°33'	10-15	0036	0051	466	0-146	60	60

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³	
				Start	End			Total cc.	Small organisms cc.
93.50	32°10'	118°52.5'	10-14	2101	2115	458	0-142	79	79
93.55	32°04'	119°09'	10-14	1856	1910	510	0-138	94	94
93.60	31°52'	119°30.5'	10-14	1536	1551	467	0-139	17	17
93.65	31°40'	119°53.5'	10-14	1241	1256	467	0-145	43	43
93.70	31°31.5'	120°29'	10-14	0736	0750	488	0-143	21	21
93.80	31°11'	121°05'	10-14	0046	0100	464	0-143	50	50
93.90	30°50'	121°41'	10-13	1856	1910	515	0-142	54	54
93.100	30°28.3'	122°18.9'	10-13	1316	1331	475	0-139	17	17
97.30	32°15.3'	117°08.4'	10-18	1129	1134	191	0-47	262	262
97.32	32°11.4'	117°16.3'	10-18	1016	1030	475	0-143	78	78
97.35	32°03.3'	117°29'	10-18	0806	0820	470	0-145	49	49
97.40	31°56'	117°50'	10-18	0536	0550	482	0-142	31	31
97.45	31°45.2'	118°10'	10-18	0256	0311	453	0-151	82	82
97.50	31°36'	118°30'	10-18	0016	0030	471	0-141	87	87
100.30	31°40.4'	116°47'	10-7	0426	0440	519	0-140	116	116
100.35	31°28.2'	117°08.1'	10-7	0806	0820	516	0-134	33	33
100.40	31°14.8'	117°25.7'	10-7	1206	1221	515	0-136	31	31
100.45	31°07.5'	117°44.9'	10-7	1456	1511	516	0-141	52	52
100.50	31°00'	118°07.2'	10-7	1851	1906	490	0-146	194	194
100.55	30°47.1'	118°25.3'	10-7	2156	2211	471	0-145	51	51
100.60	30°36.8'	118°43.7'	10-7	0154	0210	529	0-144	28	28
100.65	30°24.1'	119°02'	10-8	0426	0441	499	0-146	52	52
100.70	30°12.8'	119°19.9'	10-8	0826	0841	536	0-140	34	34
100.80	29°53'	119°59'	10-8	1446	1500	493	0-141	34	34
100.90	29°33.7'	120°43.8'	10-8	2301	2316	480	0-156	27	27
100.100	29°20'	121°22'	10-9	0526	0541	494	0-157	18	18
100.120	28°36'	122°47.2'	10-9	1706	1721	516	0-142	41	41
103.30	31°05'	116°25'	10-18	1938	1945	241	0-61	299	299
103.35	30°55.2'	116°45'	10-18	2201	2216	456	0-141	59	59
103.40	30°45'	117°05.5'	10-19	0046	0101	479	0-138	58	58
107.32	30°25.8'	116°11'	10-19	0956	1011	482	0-139	131	131
107.35	30°20'	116°23'	10-19	0816	0831	462	0-143	6	6
107.40	30°09'	116°45.3'	10-19	0501	0515	470	0-144	57	57
110.33	29°48.8'	115°51.2'	10-12	1639	1643	144	0-35	145	145
110.35	29°40'	116°04.5'	10-12	1406	1420	507	0-136	34	34
110.40	29°27.1'	116°21.8'	10-12	1056	1111	468	0-152	6	6
110.45	29°19.3'	116°41.6'	10-12	0746	0801	445	0-147	38	38
110.50	29°12'	116°56.3'	10-12	0526	0540	482	0-143	35	35
110.55	29°03.3'	117°16.5'	10-12	0156	0211	508	0-140	77	77
110.60	28°54.7'	117°36.3'	10-11	2311	2326	501	0-142	46	46
110.65	28°45.3'	117°58'	10-11	1951	2005	490	0-140	43	43
110.70	28°38.4'	118°13.2'	10-11	0926	0940	487	0-145	55	55
110.80	28°21.6'	118°45.1'	10-11	0456	0510	524	0-133	74	74
110.90	27°58.7'	119°30.1'	10-10	2316	2330	521	0-137	63	63
110.100	27°36'	120°17.9'	10-10	1636	1650	493	0-144	34	34
110.120	27°03.9'	121°37'	10-10	0626	0640	506	0-142	38	38
113.30	29°22'	115°18'	10-19	1843	1850	242	0-63	33	33
113.35	29°11.5'	115°38'	10-19	2056	2110	468	0-145	41	41
113.40	29°02'	115°57'	10-19	2321	2336	476	0-138	118	118
115.35	28°54.5'	115°26.9'	10-22	0816	0830	518	0-136	54	54
117.26	28°56'	114°41.5'	10-20	1338	1345	190	0-56	68	68
117.30	28°48'	114°56.5'	10-20	1138	1146	301	0-81	33	33
117.35	28°38'	115°16'	10-20	0836	0850	467	0-140	557	557
117.40	28°28'	115°35.5'	10-20	0346	0401	465	0-144	54	54
118.39	28°18.5'	115°23.7'	10-20	0556	0611	463	0-143	132	37
119.33	28°19.6'	114°52.2'	10-22	0148	0157	323	0-84	40	40
120.25	28°22.5'	114°15'	10-20	1803	1810	209	0-51	43	43
120.30	28°13'	114°34'	10-20	2028	2036	294	0-82	78	78
120.35	28°03'	114°54'	10-20	2258	2305	244	0-69	94	94
120.40	27°56.5'	115°14'	10-21	0109	0113	126	0-25	56	56

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per 1,000 m. ³	
				Start	End			Total cc.	Small organisms cc.
120.45	27°42.9'	115°32.9'	10-14	1751	1806	478	0-142	61	61
120.50	27°32'	115°53.9'	10-14	2121	2135	463	0-145	67	67
120.55	27°21.9'	116°13'	10-15	0006	0020	486	0-139	43	43
120.60	27°11'	116°34.2'	10-15	0326	0341	473	0-141	99	99
120.65	27°00.5'	116°55'	10-15	0626	0641	496	0-142	111	111
120.70	26°49.5'	117°16'	10-15	1006	1020	491	0-137	100	100
120.80	26°35'	117°43.7'	10-15	1326	1340	474	0-142	40	40
120.90	26°10'	118°24.7'	10-15	2030	2044	502	0-137	2	2
120.100	25°51.4'	119°03.1'	10-16	0211	0226	513	0-134	68	68
120.120	25°14.5'	120°22.7'	10-16	1156	1210	516	0-136	41	41
123.37	27°24'	114°40'	10-21	0638	0645	271	0-68	92	92
123.42	27°14'	114°59'	10-21	1321	1335	464	0-139	34	34
123.45	27°08'	115°10.8'	10-21	1501	1515	456	0-143	20	20
123.50	26°58'	115°30.5'	10-21	1731	1745	421	0-145	116	116
127.34	26°55'	114°06.5'	10-22	0558	0606	225	0-69	85	85
127.40	26°43.5'	114°29'	10-22	0306	0321	442	0-142	106	106
127.45	26°33'	114°48.5'	10-22	0036	0051	422	0-145	85	85
127.50	26°23'	115°08'	10-21	2156	2210	414	0-143	87	87
130.30	26°28.9'	113°28.7'	10-19	1029	1033	159	0-31	176	176
130.35	26°18.2'	113°48.2'	10-19	0751	0805	534	0-135	75	75
130.40	26°08.3'	113°05.4'	10-19	0521	0536	508	0-139	193	193
130.45	25°57.1'	114°24.2'	10-19	0136	0151	497	0-137	70	70
130.50	25°46.2'	114°43.2'	10-18	2256	2310	504	0-132	117	117
130.55	25°36.3'	115°02'	10-18	1926	1941	508	0-140	41	41
130.60	25°30.3'	115°23.6'	10-18	1356	1411	496	0-141	56	56
130.70	25°11.3'	116°01.8'	10-18	0756	0810	522	0-134	71	71
130.80	24°47.3'	116°45.1'	10-18	0226	0241	504	0-139	89	89
130.100	24°10'	117°53'	10-17	1646	1700	504	0-139	18	18
130.120	23°30.6'	119°09'	10-17	0226	0240	535	0-134	50	50
137.23	25°34'	112°18.9'	10-19	1938	1946	254	0-67	142	142
137.30	25°20'	112°45.7'	10-19	2326	2341	531	0-136	90	90
137.35	25°09.9'	113°04.5'	10-20	0226	0240	518	0-136	118	71
137.40	24°59'	113°25'	10-20	0556	0610	510	0-137	67	67
137.45	24°50'	113°42.1'	10-20	0826	0840	499	0-134	72	72
137.50	24°40.6'	114°01.4'	10-20	1226	1241	504	0-137	56	56
137.55	24°30'	114°23'	10-20	1606	1620	506	0-140	71	71
137.60	24°21.4'	114°40'	10-20	1856	1910	506	0-140	209	138

Table 5.--Station data and plankton volumes, CalCOFI cruises 1960--Continued

Cruise and Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained m. ³	Depth of haul m.	Vol. per l, 000 m. ³	
				Start	End			Total	Small
								cc.	organisms cc.
Special Net Tows									
Cruise 6001:									
40.90	40° 03.2'	128° 24'	2-2	1508	1551	1494	0-414	39	39
50.70	39° 01'	125° 36'	1-30	0034	0116	1578	0-391	96	96
50.100	38° 02'	127° 50'	1-30	0953	1036	1544	0-359	81	81
70.90	34° 55.7'	124° 31'	1-21	1108	1151	1532	0-362	49	49
100.60	30° 39'	118° 39.5'	1-14	0354	0438	1375	0-411	175	175
113.60	28° 14.5'	117° 16.3'	1-22	1042	1127	1460	0-404	16	16
123.50	26° 58'	115° 31'	2-3	1528	1611	1304	0-413	38	38
127.80	25° 24'	117° 03'	2-1	2138	2221	1360	0-418	24	24
140.60	23° 45.5'	114° 17.5'	1-27	1938	2021	1264	0-418	21	21
150.60	22° 04'	113° 09.5'	1-25	0923	1006	1338	0-416	21	21
157.10	22° 33'	109° 23'	1-17	0312	0356	1253	0-433	23	23
157.80	20° 12'	113° 42'	1-22	1823	1906	1438	0-391	31	31
Cruise 6004:									
40.50	41° 24'	125° 21.5'	4-24	0952	1036	1429	0-392	186	143
70.70	35° 31'	123° 08'	4-11	1852	1936	1463	0-388	613	507
77.65	34° 36'	121° 52.2'	4-9	0207	0250	1434	0-365	235	107
140.60	23° 45.5'	114° 16.5'	4-22	2303	2346	1635	0-418	27	27
Cruise 6005:									
157.10	22° 33.3'	109° 23.3'	5-6	1435	1507	902	0-199	170	170
157.15	22° 25.2'	109° 44.8'	5-6	1959	2030	758	0-207	83	83
157.20	22° 13.0'	110° 00'	5-6	0123	0156	1016	0-211	122	122
157.25	21° 59'	110° 13.3'	5-6	0531	0603	941	0-278	70	70
157.30	21° 47.5'	110° 36.6'	5-7	1636	1708	967	0-298	39	39
157.35	21° 39'	110° 52.6'	5-7	2057	2125	942	0-252	117	117
157.40	21° 28.6'	111° 11.9'	5-8	0135	0205	1417	0-254	78	78
157.50	21° 13.3'	111° 50'	5-8	1016	1048	1185	0-264	37	37
157.55	21° 05'	112° 08.5'	5-8	1515	1546	1248	0-225	55	55
157.60	20° 56'	112° 27.1'	5-8	1921	1958	1359	0-321	35	35
Cruise 6007:									
60.200	32° 51'	133° 30.8'	7-28	1717	1800	1489	0-400	21	21
90.200	27° 47.3'	129° 29.5'	7-30	1017	1100	1302	0-424	26	26
Cruise 6010:									
60.160	34° 15'	130° 41'	9-28	0852	0936	1397	0-412	19	19
90.160	29° 06.5'	126° 39'	10-1	0927	1011	1418	0-420	13	13
130.60	25° 30.3'	115° 23.6'	10-18	1432	1516	1442	0-419	40	40
130.120	23° 30.6'	119° 09'	10-17	0317	0401	1426	0-421	20	20
Tows taken in Gulf of California									
Cruise 6001:									
151G40	23° 40'	109° 27.5'	1-18	1916	1931	521	0-135	159	159
157G25	22° 40.5'	109° 09'	1-17	0555	0610	511	0-134	31	31
157G40	22° 48'	108° 55'	1-17	0926	0941	526	0-128	51	51
Cruise 6005:									
157G40	22° 49'	108° 56'	5-6	0816	0852	862	0-270	90	90
157G70	24° 06.7'	108° 23'	5-6	0151	0225	1204	0-302	108	108
157G130	23° 34.8'	107° 26.5'	5-5	1455	1526	1482	0-152	86	86
157G150	23° 43'	107° 12'	5-5	0901	0908	243	0-46	140	140

ACKNOWLEDGMENTS

The Scripps Institution of Oceanography cooperated in the collection of data at sea. Personnel of the Fishery-Oceanography Center of the Bureau of Commercial Fisheries, La Jolla, Calif. contributed to the collection, standardization, and processing of the plankton material.

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